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On the Means of Drawing Collective Farm-Cooperative Property Closer to Property Belonging to the Whole People

The Population of the Soviet Union

The Foreign Trade of the Soviet Union Under Present Conditions

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The State Enterprise Under the New Conditions of Industrial Management

On the Use of Mathematics in Economic Calculations

Problems of Specialization in Cattle Breeding in the Current Seven-Year Period

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On Specialization and Cooperation in Industry

Problems of the Methodology of Determining the Economic Effectiveness of New Techniques

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4. *Notkin:*

On the Rates of Expanded Reproduction in the Period of the Unfolding Construction of Communism

In working out the question of the rates of economic development of socialist countries it is necessary to analyze the reasons for changes in these rates, and what is most important for the USSR at this time, to determine the dynamics of the rates of expanded reproduction in the period of the unfolding construction of communism. We begin by presenting the actual data which show how the rates of expanded reproduction in the USSR have changed in individual periods:

Growth in National Income of the USSR (in %)

First five-year plan	82
Second five-year plan	111
Fifth five-year plan	71
1952-1958	about 96
1959-1965 (control figures)	62-65

Average Annual Rates of Growth in Industrial Production in the USSR (in %)

First five-year plan	19.2
Second five-year plan	17.1
Three years of the third five-year plan (1938-1940)	13.2
Fourth five-year plan	13.6
Fifth five-year plan	13.2
1956-1958	more than 10
1952-1958	11.6
1959-1965 (control figures)	8.6

Average Annual Rates of Growth in Agricultural Production in the USSR (in %)

1950-1953	1.6
1954-1957	7.1
1959-1965 (control figures)	8

Unequal rates of growth in national income, industrial and agricultural production also prevailed in the various socialist countries. Thus, in the period 1950-1957 the average annual rates of growth in industrial production were: 20.4% in Albania, 14.3% in Bulgaria, 12.5% in Hungary, 11.8% in the German Democratic Republic, 14.2% in Poland, 13.5% in Rumania, and 10.8% in Czechoslovakia; the Chinese People's Republic is developing at even greater rates than the other people's democracies.

All of these facts testify that the rates of socialist expanded reproduction are determined not only by the advantages of socialism in developing the productive forces and by the extent to which these advantages are utilized, but also by the concrete historical conditions of economic development in the socialist countries at various stages.

Bourgeois economists attempt to explain the changes in rates of growth of industrial production in the USSR by the operation of the so-called "law of diminishing productivity," one of whose variants involves the view that rates of economic development decline to the extent that its level is increased. In economic literature we often find comparisons of the volume of production stemming from every percentage increase in output in various periods. The increase in this volume is, of course, one of the indices of the growth of the economic might of the country. But from this we cannot draw a conclusion concerning the inevitability of a decline in rates of growth of industrial production in subsequent periods. The influence of the level of economic development on its rates of growth is not as direct and simple as some bourgeois economists assume. V. I. Lenin in examining the so-called "law of diminishing returns from additional capital investments," showed that the conditions under which these investments are utilized as a rule do not remain constant. Simultaneously with the increase in the volume of production associated with every percentage increase in output there is also increasing difficulty in achieving this percentage growth as well as the possibility of a further rise in productive forces.

When an attempt is made to establish a direct mathematical dependence between the level (volume) of production and the rates of expanded reproduction, the possibilities of technical progress which arise at a new stage of economic development are usually ignored. Of course during a period of declining intensity of technical progress the rates of expanded reproduction depend first of all on increasing the number of productive workers, the possibilities of which are much narrower than the possibilities of increasing labor productivity on the basis of technical progress and improvement in the organization of production. But if we turn to the history of large-scale machine production we see that the possibilities of technical progress, as a rule, have grown and not diminished. The decline in the rates of expanded reproduction at the monopoly stage of development of capitalism are to be explained not by a scarcity of scientific and technical discoveries but by the decay of capitalism. It is relevant that unemployment grew markedly in the epoch of monopoly capitalism. Monopoly capitalism was incapable of fully utilizing for the development of production not only the possibilities of technical progress but also the growing resources of living labor. In constructing all types of empirical mathematical formulas

of the connection between the level and rates of expansion in production bourgeois economists "abstract" from the social conditions and contradictions of capitalism, and this cannot help but lead them to completely false conclusions. When they attempt to apply these formulas to socialism they ignore its superiorities in the development of technique and in the utilization of all elements of production, and this once again removes the possibility of solving the problem.

The question of the influence of the level of economic development on its rates of growth is of extremely great importance in planning socialist expanded reproduction.

The level of economic development of a country is characterized by a number of indices (the amount of national wealth, the social product and national income as a whole and per capita, the degree of development of various branches of production and the unproductive sector, the relationship between the production of means of production and objects of consumption, etc.). Of all the indices characterizing the level of economic development bourgeois economists frequently choose only the index of the volume of annual industrial production and try to demonstrate that with an increase in this volume the rates of growth of industrial production in the USSR must inevitably decline.

A small original volume of production actually does permit the expansion of production at higher rates to begin with. This may be illustrated by the following example (see the following table).

***

Average Annual Rates of Growth of Individual Types of Output in the Industry of the USSR (in %)

	First Five-Year Plan	Second Five-Year Plan	Fifth Five-Year Plan	1958 in % of 1957
Mineral Fertilizers	61.5	28.6	11.9	5.0
Automobile Coverings	59.7	37.3	6.6	13.0
Metal Cutting Machines	77.7	19.7	10.7	6.0
Automobiles	130.8	52.9	4.2	3.0
Tractors	149.0	0.8	8.5	8.0

Naturally, in new branches or in branches that earlier were slightly developed, the introduction of even a small number of large enterprises permits the achievement of very high rates of growth in output at early stages. (1) But from this we cannot conclude that in branches with a relatively high level of production the rates of growth must systematically decline. The production of cement in the USSR attained considerable magnitudes even before the Great Patriotic War and after the war grew at rates no less than in the years of the first and second five-year plans. The output of cement increased by an average of 17.1% per year during the first five-year plan, 9.4% during the second, 17.1% during the fifth, 16% during the period 1953-1957, and 15% in 1958.

The achievement by Soviet industry of a high level of development (in the volume of output) by no means signifies the necessity for an inevitable decline in the rates of growth in output in the future. The rates depend not only on the volume of industrial production but on the totality of indices characterizing the attained level of economic development of socialist society and the new possibilities which are embedded in this level, in the progress of science and techniques, in the initiative of the popular masses.

The extremely high rates of growth of industrial production in the first and second five-year plans were dictated by the need to create, in the shortest possible time under conditions of aggressive capitalist encirclement, a developed heavy industry as a base for the technical transformation of the whole national economy, the development of the socialist method of production in the city and country, and the strengthening of the defensive capacity of the country. With a relatively small original volume of national income and industrial production these rates of industrial growth in the concrete-historical conditions of the first two five-year plans, when the USSR was the only socialist country, could be achieved only by channeling the bulk of accumulation to the development of heavy industry and the expansion of industrial construction. The higher rates of growth of gross industrial production in the first and second five-year plans as compared to the post-war periods were also conditioned to a certain extent by a great increase in inter-branch turnover. In the national economy of pre-revolutionary Russia many links in modern production were absent and they were newly created during the years of the first and second five-year plans. At the same time there occurred a process of specialization, the branching off of many types of production. On this basis there developed many new ties within industry as well as between industry, construction, agriculture and transportation. An increase in gross industrial production conditioned by a growth in inter-branch turnover is not, as some think, a statistical fiction but is one of the real sources of high rates of growth of industrial production. This source operates constantly but in some periods its effect is greater and in others, less. In the period of overcoming the technical-economic backwardness of the country, the fundamental reconstruction of the national economy and the technical transformations, its effect was naturally greater.

In the post-war years the international and domestic positions of the Soviet Union greatly changed. The world system of socialism grew up and was strengthened. After the restoration of the national economy and the achievement of a new level in the development of heavy industry, the objective conditions were created for a general, harmonious expansion of the national economy. In 1954-1957, thanks to measures taken by the Party, the average annual rate of growth in gross agricultural production was raised to 7.1%. Housing construction developed considerably more in the post-war period than in prewar years. A rapid upswing in all branches of the national economy led to greater quality in the rates of growth of production in different branches (with priority being maintained for the growth of heavy industry which remains at all stages the basis for the achievement of high rates of socialist expanded reproduction as a whole).

Thus, the basic feature determining the difference

between the rates of growth of industrial production in the years of the prewar five-year plans and in the postwar period (after the restoration of the national economy of the USSR) was the new distribution of the accumulation fund among the branches of the national economy. The new conditions of socialist expanded reproduction and the possibility, with the given level of economic development, of raising the national economy as a whole without an excessive exertion of the country's economic strength determined the corresponding rates of the over-all expanded reproduction and the development of its individual spheres. With a harmonious development of the whole national economy a new measure of the high rates of socialist expanded reproduction appears. But even with this measure the rates of growth of industrial production in the USSR are completely unattainable for capitalism for any extended period such as, for example, a decade or an industrial cycle.

In the postwar years it has already become completely clear that the superiority of the USSR over capitalist countries in the rates of expanded reproduction is not conditioned by a lower volume of industrial production and its smaller absolute growth, but by the advantages of the socialist economic system. The following facts testify to this.

The Relationship Between Average Annual Rates of Growth and Average Annual Absolute Increases in Production in Several of the Most Important Types of Industrial Products in the USSR and the USA from 1953 to 1957

	Average Annual Rates of Growth (in %)		Average Annual Absolute Increases (in million tons)	
	USSR	USA	USSR	USA
Pig Iron	7.8	1.1	2.4	0.8
Steel	7.6	0.2	3.3	0.3
Coal (in units of anthracite)	9.7	1.4	30.6	6.2
Oil	16.8	2.7	11.4	8.8
Cement	16.0	2.7	3.2	1.2

The figures cited testify that the Soviet Union in recent years has attained not only higher growth rates but also a higher absolute growth in the production of a number of the most important types of industrial output as compared with the USA. Although our country still lags behind the USA in the average annual absolute increase in some types of output (in electrical energy, for example), for Soviet industry as a whole these increases are more than double the American ones. The Soviet Union greatly exceeds the USA in the rates of growth and in the absolute growth of both industrial and agricultural production (2) and combines these rates and absolute increases with a great upsurge in housing, transportation, communal and social-cultural construction.

We present another example. In 1937 the USSR surpassed the level of industrial production of the most developed European capitalist countries. Nonetheless, the rates of its industrial development after 1937 were much greater than those in these countries despite the wartime destruction.

The Growth of Industrial Production in the USSR and in Capitalist Countries of Europe From 1937 to 1957 (3)

	All Industrial Production	Steel			Electric Energy		
		1937	1957	Increase	1937	1957	Increase
		in million tons			in million kwh.		
USSR	5.6 times	17.7	51.2	2.9 times	36.2	209.7	5.8 times
England	1.5 times	13.2	22.0	1.7 times	31.9	100.0	3.1 times
Federal Republic of Germany	2.1 times	15.3	24.5	1.6 times (4)	26.3	86.4	3.3 times (4)
France	1.75 times	7.9	14.1	1.8 times	20.1	57.6	2.9 times (4)

During the period from 1937 to 1957 the absolute increase in steel production was: 33.3 million tons in the USSR, 8.8 million in England, 9.2 million in the Federal Republic of Germany, 6.2 million in France; in electric energy it was 173.5 billion kwh. in the USSR, 68.1 billion in England, 60.1 billion in the Federal Repbulic of Germany, 37.5 billion in France; in cement it was 23.4 million tons in the USSR, 4.8 million in England, 9.4 million in the Federal Republic of Germany, 8.4 million in France. Thus, even with a higher volume and with much greater absolute increases in industrial production than the capitalist countries of Europe, the USSR maintained under postwar conditions a great superiority in the rates of industrial growth and also accomplished a rapid upswing in other important branches of the national economy in recent years. Many bourgeois economists and politicians hoped that with the achievement of a high level of industrial production the rates of expanded reproduction in the Soviet Union would not exceed

the rates of industrial growth in the developed capitalist countries. But their hopes have not been justified and this, of course, is not an accident but is a completely expected development. The experience of the USSR clearly shows that in a planned socialist economy with a high level of industrial production high rates of growth are possible, even while a backwardness in a number of other indices of the country's economic development is being overcome.

***

In the period of unfolding communist construction the material-technical base of communism is being created at accelerated rates, marked differences between physical and intellectual labor and between the city and country are being overcome, a historically unprecedented level of labor productivity and national well-being are being achieved. All of this is creating the necessary prerequisities for the transition from distribution according to work to communist distribution according to needs, and is making possible a considerable decline in working time and ensuring of the all-round development of the members of the communist society. The solution of these genuinely grandiose tasks requires the creation of a harmoniously developed structure of productive and unproductive spheres of the national economy. In the current seven-year plan a long step will be taken along the path of creating such a structure. The following data on the volume and structure of capital investments testify to this:

	1959-1965 in % of 1952-1958
Capital investments in the construction of production projects	83-86
Capital investments in housing and communal construction	75-77
Capital investments in the construction of educational, cultural and health care institutions	more than 74

Capital investments in industry, agriculture, transportation and communication will be approximately doubled.

The increase of capital investments in the construction of non-production projects in almost the same measure as that in the construction of production projects, and the increase of investments in agriculture, transportation and communication by almost the same degree as in industry must help to overcome the lag which has long prevailed in certain important links of socialist production and in spheres serving the population.

As we know, the decisive role in the building of communism is assigned to the creation of its material base, to a steady and rapid development of the production sphere. The time in which the material base of communism may be built depends on the rates of expanded reproduction. In this connection the following question naturally arises: is it objectively possible now and in the future, given the creation of a more harmonious structure of social reproduction and the reduction of the workers' working time, to maintain the high rates of development of the whole national economy and, above all, of industry? Yes, the objective possibility exists.

In the period of the unfolding construction of communism the rates of expanded reproduction are determined by the need for an over-all harmonious upswing of the national economy and culture, as well as by several other extremely important economic circumstances. Among them are, first of all, the new possibilities of production accumulation which arise along with an upswing in the country's level of economic development, and a more effective utilization of material and labor resources on the basis of an intensive unfolding of the new technical revolution, an improvement in the structure of the national economy and in the organization of production, a strengthening of material stimuli, a rise in the cultural-technical level of the workers and a growth in the people's initiative as communism is approached.

An over-all upswing in the branches of production and in the spheres which serve the people is connected, under certain concrete-historical conditions, with some reduction in the rates of industrial development, in particular when the non-industrial branches of production and the spheres serving the population seriously lag behind the requirements of the country, restricting an over-all growth in the national economy, and for their accelerated development a substantial redistribution of the accumulation fund is required. If the lag in these branches is overcome by intensifying their growth in a certain period, their further development no longer requires a special, extremely great increase in costs as compared with other branches. As an example we may take agriculture. The average annual rate of growth of agricultural production in 1950-1953 was only 1.6%. This rate was clearly insufficient to meet the country's requirements in agricultural raw materials and food. The rate of agricultural growth achieved in 1954-1957 (7.1% per year) seriously changed the situation although even the current level of agricultural production has not yet led to fully overcoming the gap between the branches of the economy. The seven-year plan provides for a higher average annual rate of growth in agricultural production (8%). The realism of such a rate is corroborated by the experience of many collective and state farms and by the large scale of capital investments by the state and by collective farms in agriculture (500 billion rubles during the seven-year period). When agricultural production will attain the volume and structure which will ensure the scientifically based rational norms of food consumption for the population, the further development of the corresponding branches of agriculture, naturally, will be required only to the extent that population increases and export requirements are expanded. The requirements for clothing prepared from agricultural raw materials are much more elastic. But we know that even now in the production of clothing, agricultural raw materials are supplemented by and frequently replaced by chemical materials obtained from the processing of industrial waste products. All other requirements of workers for material goods are satisfied from the output of industry and construction.

Thus, in the process of the unfolding construction of communism the interrelationship between the rates of growth of different branches of material production will change more and more in favor of industry and construction. This will occur not only because industry produces the means of technical equipment for the whole national economy, but also because the satisfaction of national requirements will depend more and more on its level of development as a whole and particular on its raw material branches. However, for a number of years and first of all in the current seven-year plan one of the fundamental tasks is forcing an upswing in agricultural production.

With the development of the socialist economy and particularly of heavy industry the resources of accumulation in the country are increased. The level of production of

equipment and building materials as well as the level of development of the construction industry are the most important indices of the expansion of the possibilities of socialist accumulation. In 1957 28.9 million tons of cement were produced in the USA. While the volume of industrial production in the USA was approximately double that of the USSR, cement production in the USA was 1.8 times that of the USSR. In 1965 the production of cement in the USSR will reach 75-81 million tons, that is, it will exceed the USA level of production in 1957 by 1.4-1.5 times. A rapid growth in the production of the material elements of accumulation will make it possible in the current seven-year plan not only to maintain but rather to increase somewhat the norm of accumulation (and first of all production accumulation). The national income of the USSR will grow by 62-65% during the seven-year period while capital investments in production projects will increase by 83-86%. (5) The experience of preparing the seven-year plan showed that with an increase in the level of economic development it becomes easier to combine intensive production accumulation with a steady growth in national well-being. The maintenance of a high share of production accumulation in the created and utilized national income becomes an important factor in maintaining high rates of expanded reproduction.

One of the conditions of intensive production accumulation along with a great increase in capital investments in production projects is an increase in the number of workers employed in the production sphere. This increase under socialism, where unemployment is absent, depends chiefly on the growth of the able bodied population. The Soviet Union is among the countries having a high population growth. But the rates of growth of the able bodied population now lag somewhat behind the rates of growth of the whole population because of the decline of births during the war years. In the view of some bourgeois economists this must lead to a decline in the intensity of accumulation and in the rates of expanded reproduction in the USSR in the forthcoming period. However, it should be kept in mind that in the last years of the seven-year plan a more or less customary increase in the able-bodied population will be achieved in our country. This may be seen, in particular, from the following data: during 1933-1940 the total number of workers and employees in the national economy of the USSR increased by 8.6 million, during 1952-1958 by 13.9 million, and during 1959-1965 it is to grow by almost 12 million. At the same time in certain branches of the economy there is an excess of labor power which may be more rationally utilized in other branches and regions of the country.

It must be emphasized that the high rates of expanded reproduction in the USSR are secured first of all by increasing labor productivity. Thus, already in the second five-year plan 67% of the increase in the physical volume of the national income and 79% of the increase in the physical volume of industrial production were achieved by an increase in the productivity of social labor. In the fifth five-year plan this factor accounted for 90.4% of the increase in national income and 68% of the increase in industrial production while in the current seven-year plan it must account for about 90% of the increase in national income and 75% of the increase in industrial production. In the period of the unfolding construction of communism a rapid upswing in the productivity of social labor on the basis of intensive technical progress, a growth in the cultural-technical level of the workers and a better utilization of the means of production and of labor power are the principal factors maintaining the high rates of expanded reproduction. Even bourgeois economists who think that the maintenance of high rates of economic growth in the USSR is "improbable" because of "difficulties" with labor power and the need to increase capital investments in agriculture, transportation, light industry and the unproductive sphere (first of all in housing construction), admit that "the tendency toward a decline in rates of growth" may be overcome as a result of rapid technical progress. But here they announce that the Soviet Union is confronted with the following alternatives: either capital investments to ensure the progress of technique, or investments to satisfy growing consumer demand. (6) For the current stage of economic development of the USSR such alternatives are far-fetched. Testimony to this effect is the fact that in the current seven-year plan intensive technical progress and a great expansion in capital investments are combined with an improvement in the balance of the growing purchasing power demand and supply of consumer goods, an expansion in the volume of national consumption by 60-63%, a growth in real incomes of workers and employees by 40% per capita and of real incomes of collective farmers by not less than 40%.

In the period of the unfolding construction of communism more favorable conditions for increasing the annual output per worker will be created. Some economists believe that an increase in output will be hindered by the reduction in the working day and the work week, but they disregard a number of circumstances here.

The rates of growth in labor productivity depend to a considerable degree on improvements in the organization of production. The reserves of growth in labor productivity through an improvement in the organization of production are extremely great and they will be utilized in every way in the period of the unfolding construction of communism. An increase in output stemming from this factor alone must largely compensate for the decline in the working day. But of particularly great importance will be the increase in the productivity of social labor based on technical progress. In the Soviet Union science has never before been so highly developed and never before have such vast resources been available for its further development as now exist. At the same time the development of productive forces and science has never in the history of large-scale machine production created such possibilities for an over-all transformation in the technique of production as now prevail. An accelerated realization of these possibilities is promoted by socialist production relations, the high level of Soviet heavy industry, a growth in the material and social stimuli for labor and an unprecedented upswing in the cultural-technical level of the workers. During 1959-1965 electric power available for the labor of industrial workers will almost double. The labor productivity per person in industry will increase by 45-50%, in construction by 60-65%, in railroad transportation by 34-37%, in state farms by 60-65%, and in collective farms it will approximately double. The technical progress provided in the current seven-year plan represents the first stage of a new technical revolution. If we take the whole period of the unfolding construction of communism then the new technical transformation will encompass production much more intensively and will have a still greater effect on increasing labor productivity in the city and in the country. Therefore, in determining the rates of development of the national economy for a longer period we cannot confine ourselves to empirical calculations based on the experience of an earlier period. We must take account of the growing influence of the new technical revolution on the upswing of labor productivity and on the rates of expanded reproduction in the USSR and other

socialist countries.

Thanks to a steady upswing in labor productivity, the possibilities are increased for a redistribution of labor resources in favor of industry, construction and the rapidly growing branches of the unproductive spheres (education, health care, the communal economy and so on) as well as in favor of the eastern regions of the country where great raw material and fuel-energy resources are concentrated.

A rapid upswing in labor productivity in agriculture is of particular importance. By releasing labor power for cities it will promote (with smaller expenditures of living labor in agriculture) the creation of part of the living resources required for this release of labor power and for an overall expansion of national consumption.

Some bourgeois economists hold that an increase in the number of workers in cities is worthwhile for the Soviet state only if it can be achieved at no greater cost than an increase in the labor productivity of existing workers. Thus, G. Grossman presents a formula for "the costs of Soviet urbanization." In order to transfer one person from the country to the city the following investments are necessary in his opinion:

$$i^1 = (h + f)(1 + d) + (t + a)(1 + S)$$

where h = capital cost of housing per person, f = capital cost of other urban facilities per person, d = number of dependents per gainfully employed, a = compensating capital investment in agriculture per worker withdrawn, t = cost of retraining a migrant, S = number of additional migrants required to service the primary migrant. If i^{11} (capital investments in labor saving equipment) is less than i^1, then in G. Grossman's opinion it is wiser to allocate resources for the mechanization and automatization of labor than on the redistribution of labor power between city and country. (7)

In redistributing labor power between branches and regions of the country an economic calculation is, of course, necessary, the method for which has not yet been really elaborated and which is still insufficiently applied in our planning practice. However, we must not ignore the following extremely important peculiarity of the Soviet economy: the rates of expanded reproduction under socialism are objectively determined above all by the resources of production accumulation, the sources of an expansion in production. The socialist society has the possibility, of course, after taking account of domestic social relations and the international situation, of utilizing in economically effective proportions all the sources of expanded reproduction to achieve high rates in it. The new technical revolution is creating favorable conditions, first of all, for accelerating the growth of labor productivity and also for redistributing labor resources in the national economy.

For achieving high rates of expanded reproduction what is of great significance is not only how rapidly labor productivity is being increased but how this increase is being attained. To the extent that labor productivity is growing because of improvements in the organization of production, this increase either does not require substantial additional investments or requires investments in the production and transportation of additional masses of raw materials which can be processed under an improved organization of production. An increase in labor productivity based on technical progress is always connected with a growth in the machinery and power capacity available for labor, with additional investments in basic and circulating funds not only in the raw material branches but also in the corresponding branches in which technical progress is being carried out, and frequently also in the branches which are producing the new machinery, electric power and so on. The new technical revolution requires enormous investments, particularly because it gives rise to new branches of production from the very beginning.

A great increase in the capital intensity of labor under the conditions of current technical progress in some cases, as experience shows, gives rise to an increase, and in others to a decrease, in the capital-output ratio (that is, the expenditure of basic and circulating funds per unit of output). If the productivity of labor is growing more rapidly than the capital intensity of labor, then the capital-output ratio, naturally, declines. A number of studies have shown that the tendency for a reduction in the capital-output ratio in the preceding ten-year period has been dominant in connection with the replacement of less productive by more productive machine technique at new and old enterprises, increasing the importance of technical reconstruction and expansion of existing enterprises in obtaining additional production (when expenditures for structures and equipment are much less than in the construction of new enterprises), specialization and the large scale of mass production. It should be noted that with an increase in the country's economic level the possibilities of technical reconstruction and expansion of existing enterprises increase. With a planned socialist economic system savings on specific capital investments may be increased by creating common accompanying enterprises (electric power stations, fuel bases, transportation, repair bases and so on) for a number of projects, by territorial concentration of new construction and ensuring in a short period of time a more or less all-sided development of new regions with great economies on investments in transportation, which is among the branches of the economy having the highest capital-output ratios.

An important factor in the reduction of the capital-output ratio and in accelerating rates of expanded reproduction under socialism is the systematic improvement in the utilization of basic and circulating funds as a result of technical progress and the development of the creative initiative of the workers. Even bourgeois economists are forced to recognize that the absence of cyclical fluctuations in the USSR, the securing of full employment and the full utilization of productive capacity have resulted in an acceleration in the rates of economic development and a maximum increase in output per unit of investment and that these tendencies have been strengthened in connection with the large scale of production.

At the same time there are certain factors operating in our economy which counteract the decline in the capital-output ratio. Among such factors are, for example, the need in certain cases to utilize less favorable natural and economic conditions in the extractive industry, the original introduction of mechanized processes in branches using a great deal of labor, and so on. Even in replacing less perfected machine technique by more perfected and old materials by new ones there are cases in which the capital-output ratio rises. This, in particular, gives rise to the need in practice to compare the expenditures for additional basic and circulating funds and the decline in current expenditures for the purpose of determining the profitability for socialist society of earmarking part of the accumulation fund for a given period in order to attain a higher productivity of social labor (a lower value and prime cost of production). The capital-output ratio for the whole national economy may increase in certain periods also because of deficiencies in perspective planning, projecting, and construction. Among these are an unevenness in

creating construction sections and in preparing natural resources for exploitation, scattering capital investments over an excessively large number of projects, prolonging the periods of construction, underrating new types of technique in the planning which would permit a considerable decline in the cost of the project and in the capital-output ratio, a narrow branch approach to the planning of individual enterprises, and so on.

Both of these tendencies (a reduction and an increase in the capital-output ratio) may be observed in our economy, although the first tendency is dominant. The productivity of labor in Soviet industry increased more intensively than the capital intensity of labor:

	1956 in % of 1940
Increase in basic production funds per worker	160
Increase in the use of electric energy as motive power per worker	197
Increase in output per worker	212

In 1956 basic production funds in the industry of the USSR increased by 2.93 times as compared to 1940, while gross industrial production grew by 3.54 times. During this period the basic production funds of the whole national economy of the USSR grew by 2.45 times, while the national income increased by 3.13 times. Some branch projections for 1959-1965 provided for an increase in capital investments per unit of increase in productive capacity. But even the first, more precise, specifications made it possible to reduce the magnitude of planned specific capital investments. This work must be continued in the future in projecting new enterprises and in the technical reconstruction and expansion of existing enterprises.

With the given size of the fund of production accumulation a lower capital-output ratio makes it possible to attain higher rates of expanded reproduction. But the capital-output ratio is only one of the factors affecting these rates. For example, if the tightness in the balance of labor power in the national economy can be overcome only with the aid of technique involving a higher capital-output ratio, then in certain cases (particularly when it is a matter of replacing hand labor on a large scale) higher rates can be attained by simultaneously increasing both the capital intensity of labor and the capital-output ratio. Therefore, in the economic analysis and planning of rates of socialist expanded reproduction everything cannot be reduced to establishing the interrelations between the size of the production accumulation fund and the capital-output ratio. The most favorable conditions for the development of the national economy exist when a growth in the capital intensity of labor is accompanied by a still greater increase in its productivity and a reduction in the capital-output ratio. It is the new technical revolution which is creating such conditions and the socialist society will utilize them in every way during the period of the unfolding construction of communism.

If we examine the main tendency in the dynamics of the capital-output ratio then the new technical revolution must accelerate the reduction of the capital-output ratio in the future. Automatically working lines of machinery are coming to replace a multitude of machines and this leads to economies of production sites and machine equipment as well as of metal, fuel, electric energy and other materials expended in their creation. The use of new chemical materials (synthetic fibers, plastics, etc.) and the production of finished articles from these at the very start is connected with large capital investments. We know that in the current seven-year period 100-105 billion rubles are being invested in the USSR chemical industry, 5 times more than in the seven-year period of 1952-1958. But if we take all stages of extraction of natural (agricultural and mineral) raw materials and their processing into finished products, then the capital-output ratio of the corresponding types of output derived from artificial raw materials on a national economic scale will be less in the final analysis that in the output derived from natural types of raw materials. Atomic and particularly nuclear "fuel," when it will be mastered on a large scale, will by its very nature (small in amount and in reproducability) require comparatively smaller investments in basic and circulating funds in the corresponding branches.

Thus, to the extent that the growing possibilities of the new scientific-technical revolution are utilized, each percentage of growth in labor productivity will be achieved with comparatively smaller expenditures of previous labor. It is true that the share of the latter will increase under these conditions because with the development of the automation of production, with its further electrification, and with the application of atomic energy and chemical methods of production expenditures of living labor per unit of output are reduced by a much larger extent as compared with expenditures of living labor. In particular, a great saving of living labor must be attained in agriculture by means of its all-round mechanization and electrification as well as by the development of the chemical industry.

As a result of a great saving of both previous as well as of living labor per unit of output, the Soviet Union in the period of the unfolding construction of communism will not only be able to maintain the current rates of expanded reproduction with a much higher level of economic development but will even be able to increase them. On this basis in a comparatively short historical period the principal economic tasks of the USSR will be solved and the highest level of national well-being in the world will be achieved in our country.

Literature Cited

(1) On this matter V. I. Lenin noted: "...Small magnitudes always grow more rapidly in percentage terms than large ones... To take the percentage increase during the early period as a norm for succeeding periods is incorrect." (Collected Works, Volume 3, p. 453)

(2) In the four-year period 1950-1953 the average annual rates of growth in gross agricultural production were about the same in the USSR and the USA (1.6% and 1.7%). In the four-year period 1954-1957 they were 7.1% in the USSR and 1.1% in the USA. It should be noted that for the long periods of peaceful development, 1930-1940 and 1946-1957, the average annual rates of growth in agricultural production in the USSR were 3.6 times greater than the American ones (see "USSR in Figures," Statistical Collection, State Statistical Publishing House, 1958, p. 175).

(3) Calculated on the basis of data in Monthly Bulletin of Statistics, the collections "USSR in Figures," and "Countries of Socialism and Capitalism in Figures." Data for 1958 is not yet available for the capitalist countries but on the basis of incomplete 1958 figures it is already evident that the gap between the USSR and the European

(Continued on Page 56)

P. Pershin: *

On the Means of Drawing Collective Farm-Cooperative Property Closer to Property Belonging to the Whole People

The central question in the development of the collective farm structure during the process of communist construction is the question of the path of transition from two forms of socialist property to a single form of communist property belonging to the whole people. The theory worked out by the party on the drawing together and merging of the collective farm form of socialist property with that belonging to the whole people is based on the objective necessity for a steady development and improvement in both forms of socialist property, since their combination at the present historical stage ensures the most rapid development of productive forces in agriculture.

State property determines the material-technical base of the social economy and the development of production relations in the countryside on the path to communism. In its turn, the collective farm structure permits the most productive utilization of advanced technique in agriculture which would be impossible with split-up small peasant units. At the same time, on the basis of objective economic laws collective farm-cooperative property and property belonging to the whole people are drawing closer together.

As Comrade N. S. Khrushchev pointed out at the 21st Party Congress, four processes are particularly characteristic in this tendency: a steady growth in indivisible funds of collective farms, a growth in the socialization of production in collective farms, a constantly wider development of inter-farm production ties, and a particular merging of collective farm means of production with those of the state on the basis of the electrification, mechanization and automation of production.

These formulations must become the point of departure for profound theoretical investigations of the regularities of the further development of the collective farm structure and for the elaboration of practical measures for strengthening and improving collective farm-cooperative property.

In the development of socialist collective farm property and in raising its level to that of property belonging to the whole people, indivisible funds of collective farms are of greatest significance.

Indivisible funds consist of two parts: a material and monetary part. Both of them constitute an economic unity and serve as a material-production base for the social economy of collective farms. The material part of indivisible funds represents the totality of the basic means of production, while the monetary part is designed to compensate for the value of basic means of production expended in the production process and for their expansion.

The indivisible funds of collective farms are basically distinguished from other parts of collective farm property in that they cannot be distributed among collective farmers nor can they be reduced; if the collective farm is liquidated they are either transferred to other collective farms or they are placed at the disposal of the state.

The monetary resources included in indivisible funds are spent exclusively on capital investments and only temporarily may they be borrowed for current production needs. If some of the material elements of the indivisible fund are disposed of, the resources earned are included in the monetary part of the indivisible fund and not in the general income of the collective farm; they may not serve as circulating resources but must be used to replenish the material part of the indivisible fund.

The expansion of collective farm indivisible funds occurs to a considerable extent with the aid of the state; it grants long-term credit to collective farms and sells them machinery, equipment and other means of production which are produced by socialist industry. The state carries out a direct control over the expenditures of the monetary resources of indivisible funds which are concentrated in collective farms' capital investment accounts at the State Bank.

The economic nature of collective farm indivisible funds is so special that in essence they form a particular category of collective farm-cooperative property which approximates most closely to property belonging to the whole people. These particular characteristics of collective farm property in indivisible funds are conditioned by the fact that the latter determine the process of expanded socialist reproduction in collective farms and the fulfillment by them of the state planned task of selling marketed output to the state. All of socialist society is concerned with the strengthening and expansion of collective farm indivisible funds. This special form of property in indivisible funds is a guarantee that the private interests of individual groups of collective farmers will not supersede social interests even in individual collective farms.

Thus, collective farm indivisible funds have a general public significance even though they are the property of collective farms. But the right of collective farms to utilize this properly is limited in the general public interests of developing the socialist economy.

The development of the social economy of collective farms is accompanied by a steady growth in indivisible funds. While in 1940 indivisible funds of USSR collective farms were 27.7 billion rubles, in 1957 they grew to 102 billion rubles. Collective farm indivisible funds particularly grew in 1958. Thus, in the Ukraine they increased from 23.3 billion rubles in 1957 to 30 billion rubles in 1958 in comparable prices, that is by almost 29%, while in the previous two years indivisible funds grew here by 13-17%. In some oblasts of the RSFSR collective farm indivisible funds increased even more in 1958. For example, in Voronezh oblast on January 1, 1959 they were 36% higher than in the preceding year (excluding sums arising from a revaluation of cattle).

The economic basis for the growth of collective farm indivisible funds is expanded socialist reproduction, as a

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result of which intra-farm accumulation and capital investments increase and social wealth grows.

The Soviet state exercises a great influence on the whole process of development of the collective farm economy. The increase in procurement and state purchase prices, the abolition of obligatory deliveries and payments in kind for MTS work have led to a growth in collective farm money income and hence in that part of it which is earmarked for replenishing indivisible funds. The long-term credit granted by the state is of essential importance in the expansion of the basic means of production entering into indivisible funds. Thus, in 1955-1957 indivisible funds of USSR collective farms increased by almost 24 billion rubles, while in the same period the Agricultural Bank extended 15.2 billion rubles of long-term credit to collective farms. These funds, of course, are subject to repayment but because of them it has become possible for collective farms to accelerate capital construction, expand social production and increase the accumulation of indivisible funds. The reorganization of the MTS and the sale of tractors and machinery to collective farms in 1958 were very important factors in the growth of indivisible funds in that year. In this connection the state sold machinery to collective farmers with payments spread out over a three-year period, providing in this way a great deal of help in strengthening and improving collective farm-cooperative property.

The growth of indivisible funds characterizing the process of socialist accumulation simultaneously signifies a development in the productive forces of agriculture and an improvement in the production relations of the collective farm structure; it basically determines the whole progress of collective farm production, the increase in the level of intensity of economic activity and the equipping of collective farms with those means of production which are included in indivisible funds.

As the investigations of the Institute of Economics of the Academy of Sciences of the Ukrainian SSR showed, with an increase in collective farm indivisible funds per 100 hectares of agricultural land there is a steady increase in the productivity of labor of collective farmers and in the yield of the land utilized by them. This may be seen from the data in the following table for 121 collective farms in Zaporozhe oblast:

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Groups of Collective Farms by Size of Indivisible Funds per 100 Hectares of Agricultural Land (in thous. rubles)	No. of Collective Farms	Output Produced in Collective Farms				Average earnings per able-bodied person (in rubles)
		per 100 hectares (in thous. rubles)	per 1 able-bodied collective farmer (in thous. rubles)	per 1 man-day (in rubles)	payment per labor day (in rubles)	
Up to 38	42	102.6	11.6	36.9	6.81	3412
38-60	46	122.1	12.8	38.6	8.24	4326
Above 60	33	167.2	13.8	44.0	10.92	5449
Average	—	125.9	12.7	39.7	8.63	4393

From these figures it is evident that with an increase in indivisible funds productivity of labor grows both in production per man-day as well as per able-bodied collective farmer participating in the social economy. Along with the growth in indivisible funds there is an increase in the payment per labor day in collective farms and in the average annual earnings of collective farmers.

The effect of indivisible funds on the economy of collective farms is clearly expressed not only in calculations per 100 hectares of agricultural land but also in calculations per able-bodied collective farmer. The following data on 44 suburban collective farms in Kiev oblast testify to this:

Groups of Collective Farms by Size of Indivisible Funds per Able-Bodied Collective Farmer (in thous. rubles)	No. of Collective Farms	Output Produced in Collective Farms			Payment per Labor Day (in rubles)
		per 100 hectares (in thous. rubles)	per able-bodied collective farmer (in thous. rubles)	per 1 man-day (in rubles)	
Up to 2	16	124.9	3.9	27.0	5.20
2.1-3.5	14	147.0	5.6	33.5	7.36
Above 3.5	14	185.1	7.7	40.1	9.61
Average	—	152.2	5.6	38.5	7.34

In the total value of indivisible funds there has recently been a considerable growth in the value of machinery, tools, motors and transportation devices (motor vehicles). In 1958 this part of basic funds increased particularly sharply because of the sale to collective farms of the tractors and machinery of the reorganized MTS. In 1955-1957 machinery, tools and motors (in value) constituted no more than 8% of all basic funds of Ukrainian SSR collective farms while in 1958 the relative share of these rose to 26%. Thus, the structure of collective farms' basic funds has approached that in state farms although the amount of basic funds per unit of area in collective farms is still considerably less than in state farms.

In the composition of indivisible funds special note should also be taken of means of production indissolubly tied to the land (long-term planting devices, water supply installations,

buildings, road installations and others). They constitute one-half of indivisible funds and they can be used only where they are erected. The indissoluble connection between these collective farm means of production and the land, which is state property belonging to the whole people, gives them a general public character.

The most important source of the increase in the material part of indivisible funds are the monetary resources included in indivisible funds. They include: entrance fees of artel members, annual deductions from money incomes, earnings from the sale of property and surplus basic means of production not needed by the collective farm, receipts of insurance compensation for basic means of production (including cattle) that have perished, earnings from cattle sold for the purpose of replacing them with pedigreed or improved cattle, part of the earnings from the sale of output from live or slaughtered cattle earmarked in the plan for replenishing the basic herd, and earnings from stumpage payments from sales of collective farm lumber.

The determining factor in the growth of indivisible funds are the annual assignments for their replenishment from the general money receipts of collective farms. In recent years they have constituted about 15-20% of total collective farm money receipts. In the Ukraine, for example, between 1953 and 1956 an annual average of 18.9% of the money receipts of collective farms in the republic were assigned to indivisible funds. After collective farms were given the possibility of establishing their own plans for the development of the social economy, some of them reduced the percentage assignments and an average of 18.4% was assigned to indivisible funds in the republic in 1957. In 1958 the purchase of tractors and machinery from the MTS forced collective farms to revise the percentage assignments contemplated in the production-financial plans. Thus, at the beginning of the year in the Ukraine only 17.3% of the collective farms planned to assign more than 20% of money receipts to indivisible funds, while after the purchase of machinery the number of such collective farms was 54.4%. As the actual annual reports of collective farms show, in 1958 they actually assigned 8 billion rubles to indivisible funds, or 23.7% of money receipts, compared to 4.6 billion rubles in 1957.

Thus, in 1958 the monetary resources of collective farm indivisible funds in the Ukraine increased by 1.7 times. This is explained by the fact that, having a rich harvest and increasing the productivity of cattle, collective farms raised money earnings by 35% and these earnings constituted almost 34 billion rubles, which was 3 times the earnings level of 1953. This unprecedented money income made it possible to increase the percentage assignments of monetary resources to indivisible funds, as a result of which 3.8 times more monetary resources were assigned in 1958 than five years earlier (in 1953 2.1 billion rubles were assigned).

The monetary resources of indivisible funds as well as their total volume are growing from year to year to constantly increasing magnitudes. Such is the regularity of expanded socialist reproduction which is consistently leading collective farm-cooperative property on the path of drawing it closer to property belonging to the whole people.

For the purpose of further improving the process of development of collective farm indivisible funds it is necessary to earmark within them an amortization fund to which assignments will be made to compensate for the wear and tear of the basic means of production. In contrast to the existing procedure, the replenishment of indivisible funds from money receipts of amortization assignments is made in percentages of the original value of means of production in accord with the degree of their wear and tear in the production process. In recent times in collective farm annual reports amortization charges are provided for. However, these calculations are only utilized for determining production costs. It is necessary to take the next step and to segregate amortization assignments in a special fund, the resources of which will be kept in a special account at the State Bank and will be spent for capital repairs, on construction and acquisition of new instruments of labor to replace those that have been worn out. In order to correctly determine the size of amortization assignments it is necessary to carry out a general revaluation of all corrective farm basic funds.

In addition to creating an amortization fund which will ensure simple reproduction, assignments must be made in each collective farm to ensure expanded reproduction. These assignments constitute the accumulation fund, the source of which is net income.

When the Model Agricultural Artel Statute was worked out in 1935, percentage deductions from money receipts were set up for the purpose of simplifying all accounts involving charges for wear and tear and for accumulation. However, money receipts in themselves are not an index of either gross or net income and therefore they cannot be a real source of accumulation. But in those years neither production outlays nor production costs were calculated in collective farms, nor was gross or net income determined. Therefore, money receipts became the base for deductions to replenish the indivisible fund. A different type of situation has arisen now that collective farms have begun to calculate production outlays, gross and net income, and on this basis to introduce cost accounting.

In such circumstances assignments to the accumulation fund must be made not from money receipts but by means of a division of the gross income into a consumption fund and an accumulation fund. The main part of the consumption fund is used for payments for the labor of collective farmers which, as a general rule, must be at the same level as payments for the labor of workers in state agricultural enterprises. The accumulation fund is determined by the net income, part of which is placed at the disposal of the state and another part which remains at the collective farm after deductions for premiums and for social needs, and constitutes the source of the collective farm's accumulation.

Socialist accumulation in collective farms must be carried out, in our view, in two directions; first, by expanding intra-farm funds, and second, by creating inter-farm funds which would be a form of the further socialization of collective farm-cooperative property.

The elaboration of the question of annual assignments of collective farm income for replenishing indivisible funds in the future development of the collective farm economy must be posed in conjunction with the study of the question of regulating the payment of collective farm labor. With the development of the social economy of collective farms it becomes possible for the latter to pay labor at a higher level than previously. There are already collective farms in which the payment of labor is higher than at nearby state farms. This is explained by the fact that part of the collective farm's profits and the differential land rent which it realizes are available for distribution among the collective farmers. However, it is fully justifiable to pose the question whether the most wealthy collective farms which are located in particularly favorable natural conditions and which utilized state drainage and irrigation systems and which therefore found it possible to make particularly high capital investments, would make correspondingly greater contributions to the general public task of expanding the

whole of social production.

At the same time, the increasing yield of collective farm production makes it possible to increase assignments to indivisible funds to such a level that part of them may be used for public services in the countryside, for road construction, for building of a cultural and communal-living nature, etc.

The banking system of the Soviet state plays an essential role in the growth of indivisible funds. According to existing rules the monetary resources of collective farm indivisible funds are concentrated in their capital investment accounts in the Agricultural Bank, whose functions are now entrusted with the State Bank of the USSR. In the Ukrainian SSR in 1957 the Agricultural Bank held 76.2% of collective farm indivisible fund monetary assignments. However, in some oblasts (Odessa, Stalinsk and others, for example), only 65-70% of collective farm indivisible fund monetary assignments were included — this cannot be recognized as sufficient. The experience of several other oblasts (Kirovograd, Vinnitsa, Sumy) shows that it is fully possible to include considerably more monetary resources of the indivisible funds in the Bank's accounts. In 1958 more than 80% of the indivisible-fund monetary resources of Ukrainian collective farms were in capital investment accounts in the Agricultural Bank. Increasing the bank's level of accumulation of monetary resources of collective farm indivisible funds plays an important role because it leads to a strengthening of collective farm financial discipline, it strengthens the planned character of the use of monetary resources and the operation of economic levers at the disposal of the state. At the same time a fuller accumulation of collective farm monetary resources makes it possible for the banking system to expand the extension of credit to collective farms, which in turn promotes an accelerated growth in their indivisible funds.

The study of the present condition and utilization of indivisible funds shows that it is necessary to work out an improved procedure for the accounting and valuation of all elements entering into indivisible funds. In making the composition of these funds more precise it must be established that they include the full value of all basic means of production which are in the collective farm's balance and which are its property.

The present state of basic fund accounting in collective farms has important defects which consist, first of all, in the incompleteness of the accounting, the heterogeneity of the objects subject to inventory taking and their extremely unsatisfactory valuation. Some means of production are not considered at all in many collective farms. Almost everywhere pit-wells, previously erected dams, and drainage canals are not considered in the accounts. But according to the registration of water supply installations, their value (not counting dams) in Ukrainian collective farms is more than 1 billion rubles. However, far from all of these are included in indivisible funds.

In some collective farms those instruments of labor whose cost is more than 50 rubles and whose period of existence is no less than a year are included in basic funds. In other collective farms (for example, in Zaporozhe oblast) instruments of labor whose cost is more than 200 rubles and which are utilized for not less than two years are included in basic means. In the meantime, in state farms as well as in other state enterprises instruments of labor whose cost is in excess of 500 rubles and which are utilized for more than a year are included in basic means. The practice in effect in state enterprises should be applied to collective farms.

The valuation of instruments of labor is in a particularly unsatisfactory state in collective farms. Generally they are entered in collective farm accounts at their original costs, which are determined in a completely different manner in different collective farms: in some collective farms according to money expenditures, in others by taking account of actual labor-day payments which fluctuate sharply among individual collective farms and in individual years. Thus, up to 1958 cattle were valued in procurement prices, as a result of which the balance sheet value of all types of cattle was understated. In the balance sheet valuation of fruit crops and vineyards only the expenditures for the purchase of planting materials are taken account of in many collective farms. The expenditures of labor on the care of plantings prior to the onset of fruit-bearing are frequently not taken into account at all, as a result of which one hectare of fruit-bearing plantings is valued at only 700-1000 rubles in some collective farms of Kiev oblast while in other, admittedly rare, collective farms the value is about 6 thousand rubles. In the meantime, standard accounts corresponding to conditions in the Kiev and Khmelnitsky oblasts show that the approximate value of one hectare of fruit-bearing land comes to an average of 7 thousand rubles.

The situation is the same with the valuation of buildings and structures. In some collective farms no inventory has been conducted of individual buildings with a valuation being placed on each item, and the balance sheet value of buildings frequently does not correspond to real expenditures. To the extent that labor payments to collective farmers are calculated according to actual payments for labor days, in valuing buildings the value of identical buildings appears differently.

In our view a uniform system of crediting basic means according to actual expenditures should be established for all collective farms, but with labor expenditures being valued according to norms of labor payment in state farms. At the same time it is necessary to organize in all collective farms an accounting of wear and tear of basic means which will make it possible to establish their actual value in each year after taking into account the value transferred to the finished product. All this will make it possible to determine the real value of basic funds which may be compared with the value of basic funds of all collective farms, state farms and all socialist enterprises in the country. In order to correctly guide collective farm production and to plan it on a national economic scale, a general revaluation of all basic means of production included in indivisible funds is required. Only in this case will the leading organs obtain a full, clear and exact picture of the composition of collective farm property and of the real value of collective farm basic funds, and collective farms will have a point of departure for economic accounting and for the calculation of production costs.

The revaluation of livestock in existing state purchase prices which was conducted at the end of 1958 shows the great significance of a correct valuation of collective farm basic funds. In the Ukraine a growth of indivisible funds (in the value of livestock) by 9 billion rubles was revealed. In working out the value indices of the seven-year plan for the development of Ukrainian agriculture, the Gosplan of the Ukrainian SSR had to accept the value of collective farm long-term plantings in 1957 as 2096 billion rubles instead of the 468 million rubles according to collective farm balance sheets. In addition, as we already pointed out, water supply installations are not credited in many collective farms. Thus, if we consider only the revaluation of livestock, long-term plantings and water supply installations, Ukrainian collective farm indivisible funds should be

increased by 11-12 billion rubles, or by almost 40%. Such a correction essentially alters the sum of indivisible funds, their relative share in the total magnitude of collective farm-cooperative property and the very structure of funds.

In revaluing collective farm funds it is important to conduct a general inventory of them, taking as the basis for the new valuation the replacement cost of basic means, and at the same time considering their moral and physical wear and tear. In conducting a revaluation of basic collective farm funds the experience of the commissions which valued the tractors and machinery transferred to collective farms in the reorganization of the MTS may be utilized.

A general revaluation of all basic means of state and cooperative enterprises (with the exception of collective farms) is now being organized. In the interests of the planned development of the social economy of collective farms and the rational utilization of their material resources, it is necessary simultaneously to conduct a revaluation of collective farm funds by applying the general principles and methods of valuation to similar means of labor.

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One of the most important regularities in the development of collective farm-cooperative property is a consistent increase in the level of its socialization. This process is characterized first of all by the consolidation of the collective farms which is occurring simultaneously along two paths: by the combination of collective farms and by the expansion of the social economy of each collective farm taken separately.

The combination of collective farms, which took on a mass character in 1950, is still continuing. It is conditioned by the objective advantages of the larger scale of production which is conducted on extensive masses of land area and which socializes the labor of the numerous members of the collective and utilizes most fully the highly productive means of mechanization. The transformation of collective farms into direct owners and managers of machine technique created a new force for unification among the collective farms, since the consolidation of production makes for a considerable improvement and cheapening in the supply, repair, technical servicing and utilization of the machine-tractor stock. Additional investments in labor and resources and the related cheapening of output per 100 hectares of agricultural land are also direct indices of the effectiveness of the consolidation of the social economy of collective farms.

The concentration of production large-scale collective enterprises during the postwar years may be illustrated by the following indices:

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Years	For Every Collective Farm in the USSR There Were:			
	Collective Farm Households	Socially Owned Sown Area (in hectares)	Head of Large Horned Cattle	Indivisible Funds (in thous. rubles)
1940	81	492	85	118
1957	245	1696	374	1338

From the table it can be seen that every current collective farm unites three times as many collective farm households as the prewar collective farm, sows about 3.5 times as much land, concentrates 4.4 times as many large horned cattle on its livestock farms, and its social wealth in indivisible funds exceeds the prewar level by 11.3 times. In the Ukrainian SSR indivisible funds per collective farm were 191.3 thousand rubles in 1940, 1,582.7 thousand rubles in 1957, and 2,267 thousand rubles (in comparable prices) in 1958. In 1958 alone the socialist social wealth of each collective farm grew by an average of one and a half times. In Voronezh oblast average indivisible funds per collective farm grew from 1,622 thousand rubles in 1957 to 2.5 million rubles in 1958 (in comparable prices), and so on.

There is no doubt that the consolidation of the social economy of collective farms will consistently proceed further by increasing agricultural production per unit of land area as well as by the further combination of collective farms. According to very rough estimates gross production in comparable prices per collective farm in the Ukrainian SSR will grow from 3.6 million rubles in 1957 to 8.5 million rubles at the end of the seven-year plan, assuming the same number of collective farms. But if we keep in mind the further combination of collective farms it may be assumed that their number at the end of the seven-year plan will be no more than 10 thousand (instead of 14.7 thousand in 1957), as a result of which gross production per collective farm will increase to about 12.5 million rubles. This means that the level of concentration of production in collective farms will increase by 3.5 times as compared with 1957. It appears that the sum of basic funds per collective farm will increase somewhat more (by 4-5 times).

On the basis of the concentration of collective farm production the relative weight of the socially owned economy is increasing while the relative weight of the private subsidiary economy of collective farmers is simultaneously decreasing. Not long ago the sowing of vegetable and potatoes on private garden plots constituted more than 40% of all such crops sown on collective farm land. In 1941 socially owned cows in the USSR constituted only 30.9% and in 1951 37.7% of the total number of cows held by collective farms and collective farmers; in 1956 this share rose to 47.2%. The level of socialization of livestock in collective farms is increasing from year to year, and while the number of cows held by collective farmers for a long time exceeded the socially owned herds, 1958 was a turning point year in this regard. The highly characteristic growth in the socialization of productive livestock in the collective farms of the USSR is evident from the following table (see page 15).

With the higher milk yield of the socially owned livestock of collective farms the latter now occupy the dominant place in gross milk production in the collective farm village. In 1957 the output of socially owned collective farm livestock already occupied the dominant place in marketed livestock production. In the total amount of marketed meat sold by collective farms and collective farmers the socially owned sector accounted for more than 69% in 1957 and for more than 78% in the case of milk.

All this shows that the economic significance of the

private subsidiary plots of collective farmers is diminishing with each year because the social economy of collective farms is expanding and the level of socialization of collective farm production is increasing. Collective farm-cooperative property is not only growing quantitatively but is at the same time influencing the development of socialist production relations in the village. The strengthening and expansion of the social economy of collective farms is creating the material basis for freeing collective farmers from the need to engage in the private subsidiary economic activity and to maintain their own livestock on the household plot.

Good examples in this regard are provided by the collective farm of the village of Kalinovka in Khomutovsk region of the Kursk oblast and the "Zdobutok Zhovtnia" collective farm of Talnovsk region in Cherkass oblast. The collective farmers of these artels do not now have privately owned cows and are provided with milk from the social economy. The level of livestock development of these collective farms, it appears to us, can serve in corresponding regions as a standard of those economic conditions which determine the possibility and feasibility of sales by collective farmers of their cows to collective farms. These conditions are: the presence among collective farm socially owned herds of not less than 18-20 cows per 100 hectares of agricultural land, the production of not less than 500-600 centners of milk on the same area and 800-1000 liters of milk per member of the collective farm population. With this level of development of milk production, collective farms find it possible to sell the necessary amount of milk production to the state and to meet the requirements of collective farmers quite adequately.

There are not yet many collective farms in the country in which such circumstances exist. In 1958 in the Ukraine there were only 26 collective farms in which the milk yield was 500 centners and more per 100 hectares of agricultural land. However, calculated per head of population, not all of these attained the necessary level of milk production. The collective farms of the Ukraine have undertaken the task of increasing milk production to not less than 600 centners per 100 hectares of agricultural land in the current seven-year plan. Fulfilling this task will make it possible for many agricultural artels to supply milk to collective farmers from the social economy, freeing them from the need to have their own cows. It may be assumed that at the end of the seven-year plan the specific weight of the personal and subsidiary economic activity of collective farmers will be considerably reduced, and in the future collective farms will fully satisfy all the needs of the toilers of the countryside from the social economy. In these circumstances the magnitudes of collective farmers' personal plots must become the same as those of the plots of workers and employees residing in rural localities (that is, .15 hectares per household), and in the transition from small, individual cottages to comfortable large homes the plots will be still smaller and will become parterres and gardens.

Head of Socially Owned Livestock in Collective Farms in % of the Total Livestock Held by Collective Farms and Collective Farmers (at the beginning of the year)

	1941	1951	1956*	1958
Large Horned Cattle:	49.9	55.1	55.9	60.3
Cows	23.9	25.2	45.7	47.5
Hogs	48.7	61.0	64.3	67.0
Sheep and Goats	76.0	71.9	77.9	84.6
Total (in comparable units)	51.4	56.7	58.8	63.6

* On October 1.

The reconstruction of the forms of payment for the labor of collective farms is of great significance for the further development of socialist production relations in the village. A general increase in the pay of collective farmers on the basis of a growth in labor productivity and an expansion in social production is creating favorable conditions for a transition to fixed, guaranteed money payments. The collective farmer is increasingly freed from the need to appear on the collective farm market as a petty seller of products obtained from the social economy or the personal plot. He will appear in the process of circulation only as a purchaser of consumer goods.

The increase in the level of socialization in collective farms is an objectively developing process as a result of which collective farm-cooperative property will be raised to the full socialization of all means of production and of all marketed output produced in the countryside. On this basis the economic position of the collective farm peasantry is changing and is coming to approximate the position of the working class.

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Of great and constantly increasing importance in drawing collective farm-cooperative property closer to property belonging to the whole people is the establishment and expansion of inter-collective farm production ties, the joint fulfillment of one or another economic activity by several collective farms. For these purposes there has recently begun the extensive organization of inter-collective farm cooperative societies which embrace various branches of the social economy.

Generalizing the experience of organizing inter-collective farm production ties, we may outline the following classification of inter-collective farm societies according to their economic purpose:

(1) Construction societies of collective farms carrying out planning and building jobs in the countryside, procuring lumber and producing building materials,

(2) Societies for the electrification of collective farm production (for the construction and operation of hydroelectric power stations, thermal stations, sub-stations and high voltage grids),

(3) Societies connected with the mechanization of production and transportation (inter-collective farm stations for the maintenance of agricultural machinery, motor pools for the maintenance and operation of the automobile stock),

(4) Meliorative societies (for irrigating, draining and watering land, for extracting peat),

(5) Societies connected with the organization of social livestock raising (fattening points for large horned cattle at sugar and alcohol plants, points for breeding and feeding

poultry, points for artificial sowing, inter-collective farm combined fodder plants and others),

(6) Seed growing societies for organizing the production, storing, and gauging of hybrid corn seeds,

(7) Societies for processing agricultural raw materials, for performing the preliminary processing of hemp and flax, for preserving fruits and vegetables, and others, and,

(8) Integrated forms of inter-collective farm production cooperation, uniting in one organization different branches of the economic activity of collective farms.

To the types of collective farm economic societies cited here we must add at least two groups of societies which do not have a production purpose but require joint expenditures of resources by a large or small number of collective farms. These include inter-collective farm radio centers, as well as societies designed for the joint construction and organization of institutions serving the cultural-living needs of the rural population (schools, hospitals, sanatoriums, rest homes, pioneer camps).

In the whole country there began in 1955 the creation of republic insurance funds for seed, food and fodder grain. In the Ukrainian SSR the republican fund should contain about 5 million poods in five years.

The organization of inter-collective farm societies raises collective farm-cooperative property to a higher degree of socialization. The collective farms entering these societies create a combined fund, of a size unattainable for individual collective farms, for performing various economic measures, which makes possible a more effective utilization of intra-farm accumulation and a more rapid development of the social economy. In the same way a further concentration of social production is realized in the inter-collective farm societies.

The experience of organizing the various types of inter-collective farm societies shows that the degree of socialization of production in them is not the same. In some cases, as for example in inter-collective farm fattening points, only the joint feeding of collective farm livestock is organized; the fattened livestock and the other means of production required for this do not become the property of the inter-collective farm organizations. In other cases temporary societies of collective farms are created on contractual principles, for example, for the joint construction of schools or hospitals. Collective farms combine in certain proportions (for example, in proportion to their land area) monetary resources, materials and labor power for constructing required buildings and their equipment. After the completion of construction the building is transferred to the appropriate state organ for its utilization although it remains on the balance sheets of the collective farms that built it as their general inter-collective farm property.

Of a different nature are the permanently existing inter-collective farm cooperative enterprises which have been created by combining some share of the material resources of collective farms for performing one or another function of the social economy of collective farms. The most characteristic and widespread societies of this type are the inter-collective farm construction organizations and the inter-collective farm electric power stations working under the leadership of inter-collective farm Soviets.

In the middle of 1958 in 45 oblasts, territories and autonomous republics of the Russian Federation there were 348 inter-collective farm construction organizations uniting more than 3 thousand collective farms. Such organizations were considerably more widespread in the Ukrainian SSR, as may be seen from the following table.

	1956	1957	1958
Number of inter-collective farm organizations for construction and the production of building materials	319	477	564
Number of collective farms united in them	4875	7437	9067
In % of all collective farms	32.2	50.6	68.7
Payment shares of collective farms (in million rubles)	55.2	164.1	267.3
Amount of construction work performed (in million rubles)	54.9	398.7	667.7

The first inter-collective farm construction societies were created in 1956; in 1957 they began to play an important role in the economic life of the countryside. In 1957 they united one half of the collective farms and the amount of construction work performed by them was 21.5% of the total amount of collective farm construction (3.4% in 1956). In 1958 there was a new step forward — the construction societies already included two thirds of the collective farms and the total amount of construction work performed increased 1.7 times.

It should be noted that the inter-collective farm construction organizations have not been equally developed in all the individual oblasts. In Kiev, Cherkass, Chernigov and Nikolaev oblasts they included about 90% of the collective farms. In Chernigov oblast in 1957 the inter-collective farm organizations already performed 38.7% and in Nikolaev 42.8% of all construction work in collective farms. At the same time in Crimea, Stanislav and Drogobych oblasts in 1958 only 13-18% of the collective farms organized some inter-collective farm enterprises for the production of building materials.

At first the inter-collective farm organizations were created within the limits of administrative regions, and all or some of the collective farms of the given region participated. Recently, oblast construction societies have been formed in some oblasts with the largest amount of construction work performed by the inter-collective farm organizations, such as those in Chernigov, Dnepropetrovsk and Kiev oblasts. They have undertaken the organization of large-scale interregional enterprises for the extraction of stone, the production of lime, slate, reinforced concrete items and construction parts, as well as machine rolling bases for construction mechanisms, machinery, and so on.

As experience shows, inter-collective farm construction organizations have great prospects for further development. Instead of weak construction brigades of individual

collective farms they introduce large-scale organizations capable of creating powerful enterprises for the production of building materials and for organizing the fulfillment of construction jobs by industrial methods applying improved designs. In 1958 the inter-collective farm construction organizations of the Ukraine extracted 1,361 thousand cubic meters of stone, produced 156 million pieces of brick, 36.7 million pieces of tile, 60 thousand cubic meters of wall blocks. In some oblasts (Zaporozhe, Kiev, Nikolaev and others) considerable amounts of assembled reinforced concrete are used in rural construction.

The creation of large-scale inter-collective farm construction organizations and their use of industrial methods of construction make it possible to substantially increase labor productivity in construction-installation jobs. A study by senior scientific worker of the Institute of Economics of the Academy of Sciences of the Ukrainian SSR, G. Ivanov, showed that in 1957 in 11 oblasts of the Ukraine the output per average annual worker in the inter-collective farm organizations was 12,326 rubles while in collective farm construction brigades of the same oblasts it was 6,582 rubles. At the same time construction prime costs are reduced, the rates of construction and putting into operation of the built structures are accelerated. The Odessa regional inter-collective farm construction organization reduced the periods of construction of poultry yards and pigsties by 2-2.5 times compared to existing standards. In Lugansk oblast the prime costs of construction carried out by inter-collective farm organizations were 15-20% below the prime costs of construction performed by individual collective farms.

Of course, in individual construction organizations there are plenty of defects: they lack skilled engineering cadres, many collective farms do not meet their share obligations, their circulating resources are still not standardized, great diversity prevails in the pay of leading personnel, etc. The liquidation of these defects is a task that must not be postponed. It is necessary to make the Statute on Inter-Collective Farm Construction Organizations more precise, to work out a standard contractual construction agreement in collective farms, to establish norms of circulating resources, overhead costs and accumulation, wage funds, to take measures to secure construction engineers for the construction organizations, to work out instructions on providing credit and on the procedure for keeping accounts with collective farms for work performed. In addition it should be legally established that the basic resources of inter-collective farm organizations are created out of collective farm indivisible funds while circulating resources are created out of advances from contracting collective farms.

In the actual work of inter-collective farm organizations a number of questions have arisen which require theoretical elaboration. Among these, first of all, is the question of the share payments of collective farms participating in these organizations. In the Model Statute it is pointed out that a meeting of authorized personnel constituting the inter-collective farm organization establishes the size of the participating shares of collective farms depending either on the amount of construction work performed for collective farms or on the sum of monetary resources of indivisible funds or on the amount of arable land or agricultural land. In addition, other methods of determining payments are used in practice: fixed equal or varying amounts out of the total sum of collective farm money income, depending on the economic capacity of the unit.

The share payments of collective farms determine the basic resources of the inter-collective farm organization, which rests on the social economy of collective farms and depends directly on its condition. To the extent that the level of development of the social economy of various collective farms differs, collective farm share payments cannot be identical. But they should not be determined by the amount of capital construction of each collective farm, because this may change markedly over the years. Payments based on the area of land utilization of collective farms take account of the economic potentialities of collective farms more objectively. However, the effectiveness of land utilization, its yield in individual collective farms, varies markedly even within a given region. Since the economic source of the participating shares of collective farms in the established fund of the inter-collective farm organization is the collective farm indivisible funds, part of which is socialized in this organization when the collective farms combine, in our view it is most feasible to establish the size of share payments in accord with the size of collective farm indivisible funds, taking their monetary resources into account. The circumstance that here the more powerful collective farms will contribute larger sums while the economically weak collective farms will make smaller payments corresponds to the principles of socialist mutual aid and comradely collaboration which are characteristic of our social structure.

It is very important to solve theoretically the question of whether the equipment of the inter-collective farm organization is its property. In juridical literature the expressed view is that the equipment assigned to it which is created out of collective farm resources "cannot be viewed as the socialization of this equipment" and the inter-collective farm organization itself "cannot be treated as a type of cooperative organization." (1)

It is possible that such statements logically arise from the formal juridical treatment of the situation adopted with the creation of inter-collective farm organizations. But from the point of view of economic interrelationships each inter-collective farm construction organization performing economic activity deals with its material and monetary resources as a collective owner.

For the purpose of strengthening inter-collective farm organizations it is necessary to work out the kind of model statute or model regulation according to which inter-collective farm organizations will be viewed as a cooperative form of a union of collective farms with corresponding entrance fees and shares. (2) All resources of inter-collective farm organizations must be viewed as their collective property and as representing a special category of collective farm-cooperative property. Its special character lies in that it transcends the limits of individual collective farms, socializing part of their property on a higher basis. But this combined property does not cease to be collective farm-cooperative property insofar as its basis is the social economy of collective farms.

Considering the great importance of inter-collective farm societies in the future development of the collective farm structure, it is necessary to create appropriate conditions for their organization and economic activity. For this, the basic means of production of inter-collective farm organizations should be viewed as their indivisible funds, which cannot serve as a source for returning the share payments of collective farms which may leave the inter-collective farm organization. If the activity of the inter-collective farm organization ceases its indivisible fund, in our view, should be transferred to another collective farm society or should remain at the disposal of the state. The existence of such an inter-collective farm indivisible fund will strengthen the ties between collective farms. At the same time it will create the economic basis for direct grants of

long-term credit to them independently of the solvency of the collective farms which they serve.

The control figures for the development of the national economy of the USSR for 1959-1965 provide for a great program of construction work in the countryside. According to provisional estimates, in the current seven-year plan period in collective farms of the Ukrainian SSR the construction of production and cultural-living structures amounting to not less than 40 billion rubles will be undertaken, and annual expenditures will exceed by about 4 times the level of analogous expenditures in 1957. In addition, a great many homes for collective farmers will be built. All of this is the objective basis for a mighty growth of inter-collective farm construction organizations in which, undoubtedly, all collective farms of the republic will participate.

Construction organizations are only one link in the many-sided system of inter-collective farm organizations which, with every passing year, will increasingly encompass the social economy of collective farms. In the process of expanding and strengthening inter-collective farm production ties, conditions will gradually mature for a fuller combination of collective farms into production unions.

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The electrification of agriculture is called upon to play a decisive role in drawing collective farm-cooperative property closer to property belonging to the whole people. While in 1957 40% of the collective farms in the USSR and 52% of the collective farms in the Ukrainian SSR were electrified, in 1965, according to decisions of the 21st Congress of the CPSU, the electrification of all collective farms in the country will be basically completed. The economic importance of introducing electrical power into agriculture is well known. It makes it possible to carry out a many-sided mechanization of many production processes and then turn to the automation of some of them. The possibility of electrifying agricultural production, and first of all its stationary jobs, rests on the proper organization of electric power production and its supply to rural consumers. Until recently the electrification of collective farms was carried out to a considerable extent by their construction of small electric power stations providing expensive electric power without fully and regularly ensuring the satisfaction of the production and living needs of collective farms.

An important role in the electrification of the countryside was played by the government's decisions in 1953 to attach collective farms to state power systems, to industrial and communal power stations. Putting into operation the measures provided by this decree substantially expanded the supply of electric power to collective farms and strengthened production ties between city and country, between industry and agriculture.

Four stages in the successive development of ties between collective farms and the state organization of the power economy may be established:

(1) The transfer of collective farm and inter-collective farm electric power stations, transformer sub-stations and high voltage nets through special agreements for economic-technical operation by state bureaus for the electrification of agriculture,

(2) Attaching individual collective farms to local state industrial or communal electric power stations,

(3) The organization of local power systems uniting collective farm, inter-collective farm and industrial electric power station, and,

(4) The inclusion of rural regions and all the collective farms in them in large-scale state power systems.

In the first case collective farms, having built an inter-collective farm electric power station, transfer the station for a certain period for economic-technical operation on the basis of a special agreement with the state bureau "Selenergo." "Selenergo" is obliged to provide a technically skilled administration of the station and timely capital and current repairs, to take measures for the full utilization of the installed equipment and the reduction of prime costs of electric power. This procedure for using the inter-collective farm electric power stations provides collective farms with the most correct organization of the electric power economy and makes it possible, where this is feasible, to include the station in the local state net.

Attaching individual collective farms to local industrial or communal electric power stations located in rural localities is the simplest way of binding the single state enterprise with individual collective farms. This is exemplified by supplying collective farms with power from communal electric power stations of regional centers, electric power stations of sugar plants and other industrial enterprises. According to the government decision cited above, in planning the construction of new and the expansion of existing electric power stations, ministries and departments must consider the electric power requirements of collective and state farms. In the Ukrainian SSR in the middle of 1958, 288 collective farms were obtaining electric power from communal and factory stations.

The creation of local power systems which are organized by uniting several electric power stations using chiefly local power resources is of great importance for the electrification of the countryside. They generally operate on common electric nets according to a unified plan. Such a combination of stations makes it possible to organize the power economy over a considerable territory most rationally, to supply electric power in a planned manner to collective farms, RTS, state farms and industrial enterprises located in this territory.

Investigations by the G. M. Krzhizhanovsky Power Institute showed that the creation of local power systems including rural hydroelectric power stations (state and collective farm) and having regional and interregional diesel electric power stations in the localities makes it possible to transform these stations into a reliable source of electric power, permitting the extensive electfification of agriculture. (3) As an example of such a local power system we may point to the combination of the Vinnitsa thermal electric power station, two inter-collective farm hydroelectric power stations on the Bug River and the Zhmerinsk railroad electric power station. Another example, operating successfully since 1953, is the Korsum-Shevchenko rural power system which unites four hydroelectric power stations on the Ros River and one thermal electric power station operating on lignite coal. All collective farms, state farms, industrial enterprises and populated points located in the territory of seven administrative regions are electrified; they are linked by this power system in a special complex based on a common state electric power net of, it is true, local importance.

Of even greater national economic significance is the inclusion of rural regions and all of the collective farms, state farms and RTS located in them in large-scale power systems of general state significance based on powerful thermal and hydroelectric power stations. This ensures the uninterrupted supply and all-sided utilization of electric power in production and in life activities, with prime costs being several times below the prime costs of power in local electric power stations. Attaching collective farms to large-scale state systems is even now quite widespread in industrial regions. Thus, the Kiev power system, having

uilt several low-power transformer sub-stations, supplied lectric power to 32% of the collective farms in the oblast n the middle of 1958; in Kharkov oblast the state power ystem provides electric power to 44% of the collective arms, in Dnepropetrovsk oblast to 55%, in Stalinsk to 60%. The attachment of collective farms to state power systems xists on a large scale in the Volga and Kama regions, in he Urals and in Siberia, where the construction of very arge hydrostations has created a powerful base for the lectrification of the countryside.

The complete electrification of all collective farms in he seven-year plan for the development of the national conomy of the USSR rests principally on state power sys-ems and electric power stations. At the end of the seven-ear period they will provide 85% of the electric power hich collective farms will consume. While 63.8 thousand lectric motors are now operating in Ukrainian collective arms, by 1965 there will be 230 thousand of them and the tilization of electric power will increase by 4-5 times. uch technical progress in an exceptionally short period oes not yet complete the electrification and many-sided echanization of all production processes, but it is a great tep in this direction.

Therefore, a unified state power system becomes a ighty material-technical base for the kind of development f the collective farm structure in which there occurs a pecial combination of collective farm means of production with those of the state which belong to the whole people.

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Such are the principal means of drawing collective farm-cooperative property closer to the property of the whole people. As Comrade Khrushchev pointed out at the 21st Congress of the CPSU, the merging of the two forms of socialist property is directly tied to the serious problem of overcoming the marked differences between city and country, to transforming agricultural labor into a variety of industrial labor, and to eliminating the difference between intellectual and physical labor. The working out of all of these questions must be included in the plan of forthcoming scientific-research studies of economists and philosophers.

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Literature Cited

(1) Z. S. Belyayeva, The Legal Position of Inter-Collective Farm Organizations, State Publishing House of Juridical Literature, 1958, pp. 45, 48.

(2) Incidentally, this position on payments was adopted on February 2, 1959 at a meeting of authorized personnel on the creation of the Kiev oblast council of inter-collective farm construction organizations.

(3) See V. I. Veits, A. G. Zakharin, N. A. Karaulov, P. Ya. Pirkhavka, Local Power Systems, Publishing House of the Academy of Sciences of the USSR, 1958, p. 74 and elsewhere.

*P. Podiachikh:**

The Population of the Soviet Union

On May 10th of this year the announcement of the CSA USSR on the preliminary results of the All-Union Census of Population as of January 15th, conducted in accord with a decree of the government, was published. This census will play an important role in carrying out the gigantic tasks contemplated in the seven-year plan.

In conducting the All-Union Census of Population about 600 thousand census workers and workers of state statistical organs participated, including 481 thousand counters and more than 76 thousand instructors-checkers. Party, Soviet, trade union, Komsomol and other social organizations provided every kind of assistance in this important task. More than a million propagandists and agitators took part in clarifying the significance of the census to the population and the manner of conducting it. Many hundreds of thousands of activists were members of commissions for the assistance of the census organized at enterprises, institutions, collective farms, state farms, educational institutions and in local Soviets of workers' deputies. All of this ensured the successful conduct of the census.

The census provides the most valuable materials for describing the profound changes in the life of the people, in the cultural aspects of the Soviet people, the great achievements of the socialist structure in the economic development of the country, the economy and culture of the national republics, all nationalities of the Soviet Union, in the rise of the people's well-being. Valuable materials on the composition of the population by sex, age, marriage status, occupation, social group, etc. have been obtained and are being worked out.

The working out of the principal results according to all of these indices will be completed by the end of the year. However, even the preliminary results of the census which have been published and consist of brief data on the size of the population, its sex composition, distribution by territory, distribution between city and country, are clear indices of the country's development.

The population is the principal productive force of society, the most valuable capital; without knowledge of the size and composition of the population a correct organization of social production is inconceivable. The census materials will serve as the basis for elaborating concrete measures for carrying out the grandiose tasks projected by the 21st Party Congress.

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The size of the existing population on January 15, 1959 was 208,826 thousand people, according to the census data. Thus, the USSR occupies third place among all countries of the world in the size of population, following China and India. The size of the population in the USA is 19% less than in the USSR, in Japan it is 2.2 times less, in Pakistan and Indonesia 2.4 times, in Brazil 3.3 times, in the Federal Republic of Germany 4 times, in England 4 times, in Italy 4.3 times, in France 4.7 times.

The figures on the growth of population presented in the announcement of the CSA USSR testify to the great living force of the Soviet people. It is known that our people bore the burden of the first world war, the civil war and intervention, as well as the second world war. Despite this, the population of the Soviet Union is steadily growing and the economy of the country is developing at unprecedentedly hig rates.

According to the first Soviet population census conducted on the initiative of V. I. Lenin in August 1920, in a period when the struggle with intervention and the Civil War was still in progress, the population of the country was 1[illegible]4.2 million people. In 1939, as of January 17th, there were 170.6 million people. In 18 years, from August 1920 to January 1939, the population of the USSR (in the boundaries prevailing prior to September 17, 1939) increased by 36.4 million people, or by more than 27%. The average annual population growth was 2 million people, or 1.3%. In the USA and Germany during these years the increase in population was about 2 times less than in the USSR, in England it was somewhat more than 3 times less, and in France the birth rate was so low that it scarcely covered the natural decrease of population.

The effect of the second world war on the growth of the USSR population should be particularly noted. It is known that the Soviet people bore on their shoulders the main burd of the second world war. The Soviet Union lost many millions of people in this war, on the military fronts and in the occupied regions. During the war years the birth rate fell sharply, but despite this, the population of the Soviet Union increased from 190.7 million in 1939 to 208.8 million in 1959, or by 18.1 million people. As compared with 1913, the population of our country grew (in the present boundaries) by 49.6 million people, or by 31%.

It is interesting in this connection to note that the volume of industrial production increased by 36 times in the Soviet Union between 1913 and 1958. During the last ten postwar years (1948-1958) industrial production in the USSR grew by 3.6 times while in the capitalist world it grew by only about 58%. In the absolute amount of industrial production the USSR long ago outstripped England, France, Western Germany. In the rates of growth of industrial production the USSR substantially surpasses all capitalist countries. Great successes have been attained in the development of the collective farm structure and in increasing the production of agricultural and livestock products, as well as in the development of transportation, trade, and capital construction. In the period from 1913 to 1958 the national income per capita increased by 15 times in our country. On the basis of a growth in social production the material well-being of the population has increased. The growth in the real incomes of workers, employees and collective farmers and the rise in their cultural level testify to this.

The consequences of the second world war unfavorably affected the relationship between the number of men and women. In the USSR there are now 94 million men and 114.8 million women. According to data of the census, in 1939 out of every 100 persons there were 48 men and 52

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women. The excess in the number of women at the time was a consequence of the first world war, the civil war and the intervention. As a result of the second world war, according to data of the 1959 census, out of every 100 persons there are 45 men and 55 women. Such a relationship has arisen because of the situation of the age groups over 32 years old. Insofar as the population younger than 32 is concerned, the number of men and women in these age groups is now the same. The heavy consequences of the second world war might have appeared even greater had the Soviet state not shown constant all-sided concern for children and mothers. Even during the war and particularly in the postwar period the Soviet state, along with measures to restore and develop the economy, took a number of measures for the further increase of material aid to pregnant women, mothers of many children and single mothers, encouraging mothers of many children, developing public health care and strengthening medical aid to the population. Millions of mothers of many children and single mothers were given supplementary state grants-in-aid.

The measures cited here and the postwar expansion of the Soviet economy, accompanied by an increase in the material well-being and culture of the Soviet people, ensured in the postwar period a high birth rate, a sharp decline in the death rate, particularly in children's age groups, and an increase in the life expectancy of the population. The birth rate in the Soviet Union is now more than 25 births per 1000 of the population. In the USA the birth rate is somewhat lower than in the USSR, and in other important capitalist countries (England, France, Italy, Western Germany, Japan) it is considerably lower, 16.5-18.5 births per 1000 of the population. The high birth rate is connected with the marriage situation of the population. In the Soviet Union the largest number of marriages per 1000 of the population is now occurring, more than 12 marriages per year. At the same time the number of divorces in the USSR is less than in many capitalist countries. Thus, for example, in the United States according to the latest published data there are 8.3 marriages and 2.3 divorces a year per 1000 of the population. The number of divorces per 1000 of the population in the USA is 2-3 times more than in the USSR. The death rate in the USSR is the lowest, 7.5 deaths per 1000 of the population. In the USA the death rate is 9.5 deaths per 1000 of the population, in England it is 11.7, in France 11.1, in Italy 10, in Western Germany 10.8, in Japan 8.3. The death rate in the USSR is now 2.4 times less than in 1940. In comparison with pre-revolutionary times the death rate in our country has declined by 4 times. The death rate among children less than one year old has declined even more, by almost 7 times compared with pre-revolutionary times and by 4.6 times compared with the prewar year of 1940.

The high birth rate and low death rate cause a high natural increase in the population of the USSR, 17.5 persons per 1000 of the population. Such an increase does not prevail in any important capitalist country nor in almost any bourgeois country, with rare exceptions. The increase in the population of the Soviet Union stemming from the excess of the birth rate over the death rate exceeds 3.5 million persons a year in recent times. The average life expectancy of the USSR population has more than doubled between the pre-revolutionary period and 1955-1956, rising from 32 to 67 years. (1)

The data cited on the rapid growth of population despite the unfavorable consequences of the war, the high rates of growth of social production in the whole national economy and the increase in the material well-being of the USSR population are clear indicators of the advantages of the socialist system over the capitalist. It is known that in the capitalist world there are always millions of unemployed deprived of the means for existence. Bourgeois "science" declares that they are superfluous people for society, that this is a result of the increase in the production of means of subsistence lagging behind the increase in population. The data for the USSR, which show a greater growth in social wealth compared to the growth in population during the years of Soviet rule, completely refute this misanthropic Malthusian theory.

For the Soviet state and the Communist Party the growth in population is a guarantee of the further growth of productive forces, an increase in the production of material goods and a strengthening of the power of the country. Speaking in January 1955 at a Moscow meeting of Komsomol members and youth who had expressed a desire to set off to work on virgin and uncultivated land, Comrade N. S. Khrushchev stated: "Our country will be stronger the more people we have. Bourgeois ideologists have devised many cannibal theories, including the theory of overpopulation. They think of how the birth rate might be reduced, how population growth might be diminished. With us, comrades, matters are different. If to 200 million another 100 million are added, even this would not be too much."

In the announcement of the CSA USSR data are presented on changes in the size of the population during the period between the 1939 and 1959 censuses for the individual union republics. The population of the union republics, according to preliminary data, changed in the following manner during these 20 years (in thousands) (2):

	1939	January 15, 1959
USSR	190,678	208,826
RSFSR	108,379	117,494
Ukrainian SSR	40,469	41,893
Belorussian SSR	8,910	8,060
Uzbek SSR	6,336	8,113
Kazakh SSR	6,094	9,301
Georgian SSR	3,540	4,049
Azerbaidzhan SSR	3,205	3,700
Lithuanian SSR	2,880	2,713
Moldavian SSR	2,452	2,880
Latvian SSR	1,885	2,094
Kirgiz SSR	1,458	2,063
Tadzhik SSR	1,484	1,982
Armenian SSR	1,282	1,768
Turkmen SSR	1,252	1,520
Estonian SSR	1,052	1,196

While the population of the USSR as a whole increased by 9.5% between 1939 and 1959, the population of the Kazakh SSR increased by 53%, the Kirgiz SSR by 41%, the Armenian SSR by 38%, the Tadzhik SSR by 34%, the Uzbek SSR by 28%, the Turkmen SSR by 21%, the Azerbaidzhan SSR by 15%, the Georgian SSR by 14%. The population of the Kazakh SSR grew particularly rapidly. This is explained by the high natural increase of the population of the republic and the substantial influx of population from other republics connected with the utilization of the natural wealth of the republic, in particular the cultivation of virgin lands. In the size of population the Kazakh SSR has taken third place instead of fifth as in 1939. In the Belorussian SSR and in the Lithuanian SSR the population has not

reached the prewar level. These republics bore great material damage and they suffered particularly great population losses during the fascist occupation and military operations during the Patriotic War.

In the announcement of the CSA USSR data of the 1959 census are presented on the population of individual oblasts, territories, autonomous republics and national districts. A comparison of this data with materials of the 1939 census reveals considerable changes in the distribution of the population in individual economic regions. Between 1939 and 1959 the population of the Ural regions grew by 32%, Western Siberia by 24%, Eastern Siberia by 34%, the Far East by 70%, Central Asia and Kazakhstan by 38%. In the RSFSR there were particularly large increases in the population of the following Urals and eastern oblasts: in Kamchatka oblast a doubling, in Khabarovsk territory 74%, in Chelyabinsk oblast 73%, in Kemerovsk oblast 69%, in Sverdlovsk oblast 55%, in Maritime territory 55%, in Irkutsk oblast 52%, and so on. The more rapid growth of the population in eastern regions of the USSR is a reflection of the Party's and government's policy of an all-sided development of productive forces here on the basis of an energetic utilization of rich raw material and power resources.

The density of the population per square kilometer in the USSR is, on the average, 9.4 persons. The greatest density prevails in the regions of the South, 70.5 persons, including 70 persons in the Ukrainian SSR and 85 persons in the Moldavian SSR. In the regions of the Transcaucasus density is 51 persons, including 59 in the Armenian SSR, 58 in the Georgian SSR, and 43 persons in the Azerbaidzhan SSR. In the regions of Central Asia and Kazakhstan the density of the population varies markedly: In Andizhan oblast it is 183, in Fergana it is 132, in Tashkent it is 100 persons, and in Gervsk, Aktyubinsk and Kzyl-Orginsk, oblasts with great empty regions it does not exceed 1.4 persons. In the regions of the West the population density per square kilometer is 37 persons, including 42 in the Lithuanian SSR, 39 in the Belorussian SSR, 33 in the Latvian SSR and 27 persons in the Estonian SSR. In the RSFSR the highest population density is in the regions of the Center, 45 persons, including 125 in Moscow oblast, 74 in Tula oblast, 60 in the Chuvash ASSR, 54 in Ivanovo oblast, 50 persons in Kursk oblast, and so on. Population density in the regions of the Northern Caucasus in 33 persons, in the regions of the Povolzhe and Urals it is 22 persons, in the regions of the North West it is 15 persons. In the regions of the North, Siberia and the Far East, although density increased during the past twenty years in individual oblasts by 1.2-2.5 times, it is still not large.

In the announcement of the CSA USSR a great deal of attention is given to describing changes in the size of the urban and rural population and to the growth of population in cities which are centers of union and autonomous republics, territories and oblasts, as well as other cities with populations in excess of 50 thousand residents. The growth of the urban population reflects, above all, the process of further industrialization of the country. Changes in the size of the urban and rural population of the USSR are characterized by the following figures:

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	Total Population (in millions)	Of which		As a % of Total Population	
		Urban	Rural	Urban	Rural
1913 (in present boundaries)	159.2	28.1	131.1	18	82
1939 (estimate for territory including the western oblasts of the Ukraine and Belorussia, Moldavia, Lithuania, Latvia and Estonia)	190.7	60.4	130.3	32	68
1959 (census of January 15th)	208.8	99.8	109.0	48	52

The urban population increased from 60.4 million in 1939 to 99.8 million in 1959. The growth of the urban population was 39.4 million persons, or more than 65%. This increase in the urban population was accounted for by the transfer of a considerable number of rural residents to urban settlements for permanent work (at industrial enterprises, construction sites, transport organizations and at enterprises of other branches of the national economy) as well as by a natural increase. The transfer of rural residents to urban settlements occurred in two ways: first, many large villages, in which there were 7 million people, were transferred into cities, workers' settlements and urban-type settlements as a result of the development of industrial production in them; second, about 24-25 million rural residents passed over to permanent residence in cities. With the increase of 65% in the urban population, the rural population declined by 16% over the 20-year period (from 130.3 million in 1939 to 109 million in 1959). The transition of the rural population to permanent residence in urban settlements is a result of the further substantial growth of industrial production; it was made possible by successes in mechanization and in increasing labor productivity in socialist agriculture. It is sufficient to point out that the principal field work in agriculture was already almost completely mechanized by 1957: the plowing of spring crops by 98%, the harvesting of grains with combines by 90%, etc. The use of machinery and mechanisms is also continually increasing in other branches of agriculture.

The increase in the population of urban settlements due to natural increase during this period was about 8 million persons (not counting losses of population during the period of military operations and occupation). The growth of the urban population and changes in its share in the total population of individual union republics between 1939 and 1959 are shown in the following figures (see table on top of page 23).

The share of the urban population in the total population was 18% in 1913 and 1926, 32% in 1939 and increased to 48% in 1959. The highest share of urban population exists in the Estonian SSR, Latvian SSR, the RSFSR and the Armenian SSR. The rates of growth of the urban population during the past twenty years were highest in the republics of Central

	Urban Population (in thous.)		1959 in % of 1939	Share of Urban Population in Total Population (in %)	
	1939	1959		1939	1959
USSR	60,409	99,782	165	32	48
RSFSR	36,296	61,477	169	33	52
Ukrainian SSR	13,569	19,130	141	34	46
Belorussian SSR	1,855	2,475	133	21	31
Uzbek SSR	1,470	2,720	185	23	34
Kazakh SSR	1,690	4,069	241	28	44
Georgian SSR	1,066	1,696	159	30	42
Azerbaidzhan SSR	1,157	1,765	153	36	48
Lithuanian SSR	659	1,045	159	23	39
Moldavian SSR	328	639	194	13	22
Latvian SSR	663	1,173	177	35	56
Kirgiz SSR	270	692	256	19	34
Tadzhik SSR	249	645	259	17	33
Armenian SSR	366	884	241	29	50
Turkmen SSR	416	698	168	33	46
Estonian SSR	355	674	190	34	56

Asia, in the Kazakh SSR and the Armenian SSR. In the RSFSR in the regions of the North West the share of the urban population is 72%, including 92% in Murmansk oblast and 86% in Leningrad oblast (including Leningrad), it is 70% in the regions of the Far East, 59% in the regions of the Urals, including 76% in Sverdlovsk and Chelyabinsk oblasts, it is 53% in regions of Eastern Siberia, including 62% in Irkutsk oblast, it is 50% in regions of Povolzhe, 49% in regions of the Center and Western Siberia, including 78% in Moscow oblast (including Moscow), 77% in Kemerovsk oblast, it is 47% in regions of the North and 43% in regions of the Northern Caucasus.

The number of cities in the USSR increased from 1,191 in 1939 to 1,694 in 1959. There are now 2,922 urban-type settlements (1,354 more than in 1939). Among the new cities that have arisen during these years there are such large ones as Angarsk with 134 thousand residents, Volzhsk with 67 thousand, Nakhodka with 63 thousand, Novokuibyshevsk with 63 thousand, Rustavi with 62 thousand, Salavat with 60 thousand, Angren, Vorkuta and Mezhdurchensk with 55 thousand each, Bratsk with 51 thousand, and others. The number of cities with a population of more than 50,000 increased during the past twenty years from 188 to 299, of which the cities with a population from 100 thousand to 500 thousand increased from 78 to 123 and cities with a population greater than 500 thousand increased from 11 to 25. On the following page we present the population of the largest cities. (See table on page 24.)

The population of the capitals of the union republics not included in these 25 cities are: Alma-Ata with 455 thousand, Tallinn with 280 thousand, Vilnius with 235 thousand, Stalinabad with 224 thousand, Frunze with 217 thousand, Kishinev with 214 thousand and Ashkhabad with 170 thousand people.

During the years of the prewar five-year plans, in the period of creating socialist industry, a number of new large cities arose — industrial centers. It is interesting to observe how their population has changed during the past twenty years: in Karaganda it grew from 156 thousand to 298 thousand, in Magnitogorsk from 146 thousand to 311 thousand, in Komsomolsk on the Amur from 71 thousand to 177 thousand, in Norilsk from 14 thousand to 108 thousand, in Stalinogorsk from 76 thousand to 107 thousand.

There are now several large industrial and administrative centers whose population was completely insigificant in 1926. Thus, Murmansk had 9 thousand residents in 1926 and has 226 thousand now, in Dzerzhinsk (Gorky oblast) the figures are 9 thousand and 163 thousand, in Perov 24 thousand and 143 thousand, in Kuntsev 10 thousand and 123 thousand, in Orsk 14 thousand and 176 thousand, in Cheremkhov 14 thousand and 123 thousand, in Stalinabad 5.6 thousand and 224 thousand, etc. There are a number of oblasts in which almost all cities arose in the period between 1926 and 1959. Thus, in Kemerovsk oblast in 1926 the urban population was only 120.2 thousand, while now it is 2,151 thousand, including 377 thousand in Stalinsk, 282 thousand in Prokopevsk, 277 thousand in Kemerov, 132 thousand in Leninsk-Kuznetsk, 130 thousand in Kiselevsk, etc. In Murmansk oblast in 1926 there were only 17.3 thousand urban residents and now there are 524 thousand. In Khabarovsk territory in 1926 the urban population was 69 thousand and now it is 849 thousand. In Zaporozhe oblast in 1926 there were about 129 thousand people in urban settlements and now there are 832 thousand.

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In conclusion we must clear up the question of the exactness of the figures obtained in the census. In accord with a decree of the government the census was conducted from the 15th to the 22nd of January 1959 by means of an interrogation of the population by specially trained counters, and from January 23rd to February 1st a check-up of the correctness of the census was carried out by means of an all-round control observation of all residences by instructors-inspectors. In rural localities representatives of village Soviets were also involved in the control observations. During the census, counters entered 207,752 thousand people on the census lists. During the control observations an additional 285 thousand people who had been left out by the counters were entered on the census lists. Besides this, in order to ensure the completeness and exactness of the data on population during the period of the census and the control observations, individuals in regard to whom there was some doubt as to whether they had been covered by the census in the localities where they happened to be on the night of January 14th-15th were registered on

	Population (in thous.)		1959 in % of 1939
	1939	1959	
Moscow	4,183	5,032	120
Leningrad	3,385	3,300	97
Excluding cities and urban-type settlements subordinate to the Leningrad City Soviet	3,015	2,888	96
Kiev	847	1,102	130
Baku	775	968	125
Excluding urban-type settlements subordinate to the Baku City Soviet	571	636	111
Gorky	644	942	146
Kharkov	833	930	112
Tashkent	550	911	166
Novosibirsk	404	887	219
Kuibyshev	390	806	206
Sverdlovsk	423	777	184
Stalino	466	701	150
Tbilisi	519	694	134
Chelyabinsk	273	688	252
Odessa	602	667	111
Dnepropetrovsk	527	658	125
Kazan	398	643	162
Perm	306	628	205
Riga	355	605	170
Rostov on the Don	510	597	117
Stalingrad	445	591	133
Saratov	372	581	156
Omsk	289	579	201
Ufa	258	546	212
Minsk	237	509	214
Yerevan	204	509	250

control forms. After the census the control forms were carefully inspected. The control forms consisting of people who had been entered in the census lists were cancelled, while the figures from the control forms for people who had not been counted in their localities on the day of the census were transferred to the census lists. By verifying the control forms 789 thousand people were included in the census totals.

Control observations and control forms are not used abroad in conducting censuses. In order to determine the degree of exactness of the census, after it is completed sample control check-ups are conducted. Thus, for example, a sample check on the comprehensiveness of the 1950 census in the United States showed that during the census about 2,100 thousand people were not counted, or about 1.4% of the country's population.

In the USSR even in the 1939 census control observations and control forms were used. These control measures made it possible to reveal, during the last census, 1,074 thousand persons in addition to those registered by counters. In relation to the total population this is only 0.51%.

In many countries both the present and permanent population are counted in censuses at the same time. In the USSR, by the present population of each populated point (city, village) is meant all individuals who happened to be there on the day of the census, including temporary residents (those sent on missions, those staying as guests, etc.). All those present on the day of the census, for whom the given point is the place of permanent residence, are included in the permanent population. Besides this, the permanent population includes the temporarily absent, that is, individuals who are permanent residents of the given populated point but on the day of the census are temporarily in another locality (on the territory of another village or small village Soviet, region, city, oblast). For the country as a whole, if the census is conducted correctly the present and permanent population should coincide because every person temporarily absent from one locality should be included as temporarily residing in another locality. According to the census the present population of the USSR was larger than the permanent population by only 600 thousand persons, or by 0.3%. This testifies to the extreme exactness of the census data. For comparison it should be noted that in the Russian census of 1897, with a population of 125.6 million people the gap between the present and permanent population was almost 1 million persons, or 0.75%. In foreign countries this gap is often equal to 1-1.5%, and the permanent rather than the present population is counted more fully. The more exact accounting of the present population in the censuses of 1939 and 1959 is a result of conducting control observations and the use of control forms and census record certificates (certificates were given out to avoid double counting of all temporary residents and all persons who were expecting to depart for other localities during the census).

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The first brief results of the All-Union Census of Population of 1959 were derived from summary lists prepared by census workers which were at the same time inventories of census lists presented to them. At computing stations

of statistical administrations detailed census figures are now being worked out on a territorial basis on the distribution of the population by sex, age, nationality, language, education, training, family status, social groups, sources of means of subsistence, branches of the national economy, production, and major occupations, as well as groupings which describe the composition of the population according to combinations of these characteristics. The program for working out the results of the census was prepared with the participation of scientific workers and was discussed at an All-Union Conference of Statisticians in June 1957 and at a conference held in December 1958 with the participation of representatives of scientific organizations, planning organs, ministries and departments.

The program for working out the results of the census contemplates obtaining detailed data on the distribution of the population by sex and age. These figures are extremely important indices of the composition of the population. Precise indices of the distribution of the population by sex and age will help in the more effective planning of the development of the national economy, the rise in the well-being and culture of the population. For example, figures on the population of working age (16-59 for men and 16-54 for women) will make it possible to construct more exactly a balance of labor resources and to determine the resources for replenishing them. Exact yearly figures on the number and distribution of children up to six years of age by territory will help in the better planning of the network of children's institutions (consultation centers, crèches, kindergartens) and the training of personnel for them, as well as the network of schools, the amount of room in them and the training of teachers. Materials on the composition of urban and rural population by sex and age will make it possible to improve the planning of the trade network and the distribution of products within it, since it is known that men and women, boys and girls, do not need products in general, but one or another type of concrete specific product. Data on the ages of married and unmarried men and women, along with other information, will be extensively used for ascertaining the prospects for changes in the size of the population and for solving practical questions of the further strengthening and development of the Soviet family.

The distribution of the population by nationality and native language will show what kind of successes have been attained in the development of individual nationalities, national republics and oblasts during the years of Soviet power. In working out the materials of the census there will be a calculation of the distribution of the population of each nationality into urban and rural, by sex, age, family status, literacy, educational level, training, occupation, branches of the national economy, social groups, number of families; for the individual nationalities the size and composition of the intelligentsia will be calculated.

Working out the results will give estimates of the number of persons with higher education, with incomplete higher, secondary special, secondary general, seven-year, and primary education, as well as the number of students in higher educational institutions, secondary and primary schools, in trade schools, professional schools, etc. These materials will testify to the exceptionally great successes of the Soviet state in the field of public education and in the training of highly skilled specialists for the national economy.

The data on the distribution of the population according to branches of the national economy and types of production, as well as according to the most important concrete occupations and groups of similar occupations (metallurgists, miners, textile workers, etc.) will show the tendencies of the future changes in the interrelationships of labor employed in branches of material production and in the non-productive branches, in industry and agriculture, intellectual and physical labor, male and female labor. The census data will reveal the occupational structure of those employed in the national economy as a whole and in individual branches and types of production. The distribution of women workers by branches will show their constantly increasing role in social production. These figures will be widely used in working out measures for further improving the organization of production and administration of all branches of the national economy, for characterizing the composition of employed and unutilized labor resources, for planning the future training of specialists and cadres of the mass professions. The calculation of the number of workers, employees, collective farmers, cooperative and non-cooperative artisans, and private peasants will reveal the class structure of the socialist society.

The program for working out the results of the census contemplates an all-sided description of the population of the USSR — demographic, by nationality, cultural, production-occupational and social. The results of the census will provide the most valuable materials for central, republican and local organs of the state and economic administration, planning organs and scientific institutions in solving the tasks of the further development of the national economy, the organization of production and labor, the improvement of national economic planning.

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Footnotes

(1) In international statistics and in insurance matters the average life expectancy is understood to be the number of years which on the average the present generation of births may be expected to live, if it is assumed that over the whole length of life of this generation the death rate will be equal to the current level of the death rate in individual age groups.

(2) In the 1939 figures an estimate is included of the population in the western oblasts of the Ukraine and Belorussia, Moldavia, Lithuania, Latvia and Estonia.

N. Orlov:

The Foreign Trade of the Soviet Union Under Present Conditions

The decisions of the 21st Congress of the Communist Party of the Soviet Union contemplate a grand program of communist construction in our country. The goal of this great economic program is to create an abundance of the good things of life for the complete satisfaction of the material and spiritual needs of the Soviet people, ensuring the highest standard of living in the world by means of a further powerful growth of industrial and agricultural production, a rapid development of all branches of the national economy. The fulfillment of the USSR seven-year plan will be of world-wide historic importance. The triumph of socialism in peaceful economic competition with capitalism will decisively demonstrate the indisputable superiority of the socialist system over the capitalist system. A grandiose leap in the future growth of social production in the Soviet Union and other socialist countries will fundamentally change the relationship between the economic potential of socialism and capitalism in the world arena in favor of socialism, and will lead to a situation in which the world socialist system will surpass the capitalist world in the volume of industrial production within a short period of time. This will have a decisive effect on the whole process of world social development.

The new powerful upswing in the socialist economy of the USSR is accompanied by a further expansion of its international economic ties. The grand program of peaceful economic construction in the USSR opens up still wider perspectives of economic collaboration of the Soviet Union with the brotherly socialist states, with all countries of the world.

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The foreign trade of our country is an indissoluble part of the whole Soviet national economy. Developing in a planned manner on the basis of objective economic laws of socialism, it serves the expansion of socialist reproduction and is carried out in accord with the tasks of the national economic plans. These characteristic features of Soviet foreign trade are determined by the socialist method of production prevailing in our country.

Under socialism the driving force in the development of international exchange of products is not the extraction of profits but the promotion of the most rapid growth of social production for the purpose of the most complete satisfaction of the constantly growing material and cultural requirements of the working people. The foreign trade ties of the socialist state are subordinate to the same major task which determines the development of the whole socialist national economy. Organically connected with the planned, proportional development of the whole socialist economy, foreign trade helps to increase the rates of development of the national economy, to create the conditions for an accelerated expansion of individual branches of production.

The planned character of the conduct of foreign trade is determined by the general tasks of the national economic plans of the Soviet Union. In 1920 the 9th Congress of the Communist Party of our country, emphasizing the importance of a single economic plan, pointed out: "Foreign trade, insofar as its possibilities are opened up to the Soviet republic, must also be wholly subordinated to the rqquirements of the basic economic plan." (1) At all stages of socialist construction the foreign trade of the USSR has had the aim of solving important tasks of economic construction and has been organically tied to the general national economic requirements of the country.

The foreign trade of the Soviet state leans upon the superiority of the socialist economic system and the new system of foreign economic ties that characterize it. The state monopoly of foreign trade established in our country is a form of trade corresponding to the socialist method of production.

The state control of foreign trade under socialism and, consequently, conducting export-import operations in accord with the national economic plan represents a form of foreign trade which can only be created with the transition to the construction of a socialist economy. Only by having the socialist state monopolize foreign trade is it possible to create a system of trade which meets the needs of expanded socialist reproduction, which makes it possible to carry out foreign trade turnover in the most rational forms in accord with the tasks of the national economic plans. The conduct of foreign trade on the basis of a state monopoly safeguards the socialist economy from the influence of the spontaneous movements of the world capitalist market with its speculative flights and crisis declines.

The foreign trade ties of the Soviet Union are based on new principles of international mutual relations proclaimed by the Great October Socialist Revolution and consistently carried out by the Soviet state. The Soviet Union, conducting its foreign trade policy and developing many-sided economic ties with other countries both large as well as small, is guided by the principles of absolute equality of rights, non-intervention in internal affairs, respect for mutual interests. An important characteristic of the economic interrelationships of the Soviet Union with other countries is their promotion of the striving for independent economic development.

The steady upswing of the national economy of the Soviet Union is accompanied by a systematic development of its foreign trade and other forms of economic collaboration with foreign states. This bespeaks the fact that one of the major characteristics of the development of the socialist economy is an expansion of international economic ties.

Growth of Foreign Trade Turnover of the USSR
(in billion rubles; in prices of the corresponding years)*

1946	5.7
1950	13.0
1958	34.6

* The figures on the foreign trade of the USSR presented in the article are given in foreign trade prices.

The Soviet Union has substantially exceeded the capitalist countries in the rates of growth of foreign trade in the

postwar period.

While up to this time the trade of the capitalist world has more than doubled the pre-war level, the volume of foreign trade of the USSR in comparable prices exceeds the prewar level by more than 6.5 times. Thanks to the high rates of growth of foreign trade turnover, the Soviet Union occupies 6th place in the world in the volume of foreign trade, while in the prewar years it was in 16th place. The number of states having trade ties with the USSR is constantly increasing. The Soviet Union now trades with more than 70 countries of the world, while in 1946 it maintained trade ties with only 40 states.

The steady and firm expansion of the foreign trade of the USSR is one of the obvious evidences of the indisputable advantages of the socialist economic system.

The Soviet state utilizes through foreign trade and other forms of economic collaboration the advantages created by the international division of labor. The exchange of goods with foreign states makes it possible for our country to achieve economies of expenditures of social labor and in this way to accelerate the rates of economic development. In exchange for the output of its industry and agriculture the USSR purchases various means of production and consumer goods in the interests of the most rapid solution of the problems existing in the sphere of economic development.

The expansion of imports of various products depends upon the steady upswing of the national economy of the Soviet state and a growth in the capacity of its internal market. An increase in the importation of machinery and equipment, semi-finished goods and raw materials is connected with a systematic growth of capital investments in various branches of the national economy, an expansion of productive capacity, a growth in the output of industrial products. An expansion in the importation of consumer goods and the raw materials for their production is based on a continuous growth in the well-being of the country's population and its purchasing power demand.

The systematic increase in the USSR in the output of machine building products, raw materials and consumer goods plays a decisive role in meeting its internal requirements. But a peculiarity of the planned expansion of the socialist economy is that conditions are simultaneously created for an expansion in purchases of various goods from other countries for the purpose of meeting the constantly growing needs of the national economy and satisfying the requirements of the population.

Native machine building produces all types of modern machinery for the various branches of the national economy. It plays the decisive role in the technical equipping and re-equipping of industry, transport and agriculture. At the same time the Soviet state purchases some types of machinery and equipment from other countries. The Soviet Union purchases machinery and equipment chiefly from socialist countries who in this way can be completely confident of marketing the output of their machine building. At the same time the USSR purchases certain types of equipment from capitalist states. During the last five years the Soviet Union has imported equipment valued at 19 billion rubles.

Our country imports many types of metal-working machine tools, and forging-pressing, power driven and electrotechnical equipment, equipment for the metallurgical and several other branches of heavy industry. In connection with carrying out the great program for the development of the country's chemical industry, some types of equipment for the construction of several chemical enterprises are being purchased abroad (to supplement the output of domestic chemical machine building). In recent years there has been an increase in the importation of equipment for the light and food industries. The USSR also imports various ships and shipping equipment, chiefly for replenishing the fishing fleet, as well as railroad equipment.

The foreign trade of the Soviet Union also plays quite a important role in replenishing the raw material resources for industry. For example, during the last five years the USSR has imported more than 500 thousand tons of natural rubber. During the same period 3 million tons of various types of rolled ferrous metals and pipes have been imported.

At the same time foreign trade is used as a lever for accelerating solution of tasks in expanding the resources of consumer goods. Besides the importation of equipment for the construction of a number of light and food industry enterprises, the importation of many types of raw materials for the production of these products is being increased. The importation of some types of finished consumer goods is also being increased. During the last five years our country has imported more than 27 billion rubles' worth of consumer goods and raw materials for their production. During this period the following have been imported: about 50 million pairs of leather shoes, 70 million meters of woolen cloth, 260 thousand tons of wool, 220 thousand tons of artificial fibres, more than 100 thousand tons of cocoa beans, about 500 thousand tons of citrus fruits, more than 450 thousand tons of fresh fruits, and many other goods. The importation of various consumer goods and raw materials for their production as well as equipment for branches of the light and food industries helps to replenish the market funds for meeting the steadily growing demand of the population.

The changes which have occurred in the postwar period in the structure of imports of the Soviet Union are characterized by the following figures (see table on page 28).

To the extent that there is a further development of industrial and agricultural production the export possibilities of the country also increase. The growth of USSR exports makes it possible to pay for the constantly growing purchases of various goods from other countries. At the same time their increase is connected with the all-round assistance granted by the Soviet Union to the people's democracies in the construction of socialist economies and to the economically undeveloped countries of the world in carrying out their programs of economic development.

The growth of the Soviet Union's exports has a fundamentally different basis than the expansion of exports of capitalist countries. In capitalist countries the development of social production is always restrained by the narrow limits of the internal market and, consequently, an expansion of exports is an attempt to overcome, on the foreign market, difficulties in marketing commodities. For this reason, economically developed capitalist countries are always vying with each other in the struggle for markets for their commodities in various countries. Under socialism, the productive forces are freed from the path of private property and are not confronted by the obstacles to their development arising from the contradiction between the social character of production and the private property character of appropriating the results of labor under capitalism. The planned expansion of the socialist economy rests on the systematic expansion of the internal market. Therefore, the development of social production cannot come up against narrow limits of the product market in the country and there is no need to search for a solution to the problem of marketing excess output on a foreign market.

The Soviet Union, being a highly developed industrial

The Structure of Imports of the USSR (as a % of the total)

	1938	1950	1958
Machinery and equipment	34.5	21.5	24.5
Metals and metal articles	25.4	7.2	7.3
Ores and concentrates	2.7	5.8	9.3
Fuel	1.2	11.8	4.9
Rubber	3.5	3.5	4.2
Textile raw materials and semi-finished goods	9.7	7.7	7.1
Food products and raw materials for their production	12.7	17.4	14.9
Industrial consumer goods	1.0	7.4	14.4

country and having at its disposal great resources of various raw materials and a developed agricultural production, has the possibility of exporting a wide variety of goods. The export of machinery, equipment and other industrial output, raw materials, and agricultural products fosters the development of trade relations of the Soviet Union with countries having the most varied economic structure.

The progress in the development of the national economy attained during the years of socialist construction has also given rise to substantial changes in the structure of exports of the Soviet Union. In the past, when the country was economically backward, mainly agricultural products were exported abroad. In the exports of pre-revolutionary Russia agricultural products constituted more than 70% while industrial products played an insignificant role, with raw materials being the major exports (crude timber materials and products of the extractive industries).

The transformation of the USSR into a powerful industrial power fundamentally changed the structure of our country's exports. By 1938 industrial products already constituted 57% of the total exports of goods from the USSR. In the postwar years, on the basis of a new powerful expansion of our country's industrial production, there occurred a further increase in the share of industrial products in exports. About 80% of the total exports of the Soviet Union now consist of products of socialist industry.

Other important changes which have occurred and are occurring in Soviet exports are the changes in the relationship between finished goods and raw materials. Prerevolutionary Russia exported almost exclusively agricultural commodities and crude industrial raw materials. In the Soviet period, thanks to the rapid economic development of the country, exports of finished goods have acquired a constantly growing importance. In 1938 38% of total USSR exports already consisted of finished goods. In the period of the postwar economic development of the Soviet Union the process of expanding the export of manufactured types of goods accelerated greatly. About two-thirds of the total exports of products from the USSR now consist of finished goods.

The most important changes in the exports of individual types of products may be observed from the following figures:

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The Structure of Exports from the USSR (as a % of the total)

	1938	1950	1958
Machinery and equipment	5.0	11.2	18.5
Metals and metal articles	1.6	8.5	16.4
Ores and concentrates	2.2	2.2	4.4
Fuel	8.8	3.9	15.2
Timber materials	20.3	3.1	5.6
Textile raw materials	4.2	11.2	6.8
Grain	21.3	12.1	8.3
Furs	9.4	2.3	0.8
Industrial consumer goods	7.9	4.9	3.6

In the prewar period more than one-half of Soviet exports consisted of timber materials, grains and furs while now these constitute less than 20%.

The greatest increase in USSR exports during the postwar years has been in products of the machine-building and metallurgical industries. For some time our country to a great extent depended on imports of machinery and equipment. Now, as a result of the creation and development of a powerful native machine-building industry the Soviet Union has become a large exporter of machinery and equipment. Exports of various types of equipment from our country are steadily growing and their share in total exports is increasing. It is sufficient to point out that the exports of machinery and equipment in 1958 exceeded 3 billion rubles and increased by 3.7 times as compared to 1950. At the same time exports of products of the Soviet metallurgical industry are expanding rapidly. More than one third of the total exports of the USSR now consist of products of the machine-building and metallurgical industries.

There has been a marked growth in the Soviet Union's

exports of oil and oil products, which reflects the high rates of development of our oil industry.

An expansion in the exports of cotton is also characteristic of the changes occurring in our country's exports. The successful expansion of cotton growing has made it possible not only to meet the needs of the rapidly growing domestic textile industry, but also to export large quantities of cotton. During recent times exports of cotton have come to more than 300 thousand tons annually. Exports of cotton now exceed the prewar level by 15 times. The USSR is one of the largest exporters of cotton in the world.

The seven-year plan of peaceful economic construction in the USSR opens up broad perspectives for the further development of foreign economic ties between the Soviet state and all countries. In the next seven years it is possible for our country to at least double the volume of its foreign trade.

A new powerful upswing in industrial and agricultural production is creating firm material prerequisites for a considerable growth in the country's export resources. The Soviet Union has the possibility not only of substantially increasing exports of those types of products which it is already supplying to other countries, but also of offering a whole series of new products which would be of interest to various countries. The planned progress in the sphere of industrial development ensures a considerable enrichment in the variety of exportable products.

The basic line of development of Soviet exports in the period of the seven-year plan is connected with the future growth of industrial production in the country. Here, especially great export possibilities are being opened up thanks to a new powerful upswing in domestic machine building. The production of machine-building and metal-working products will almost double in the period 1959-1965. The rapid growth in the output of metal-working machine tools, forging-pressing equipment, instruments, turbines, generators, electric motors, rolling metallurgical equipment, and equipment for other branches of industry, transport and agriculture not only increasingly meets the needs of the country's national economic development, but also makes it possible to increase exports of various types of machinery and equipment. In the light of the planned rates of growth in the production of the machine-building industry, at least a doubling in the exports of machinery and equipment during the seven-year period appears completely realistic. There will also be a substantial expansion in the exports of ferrous metallurgy products and ores, oil and oil products, coal, products of the lumber and paper industries and a number of other items. Thus, the expansion of exports will occur largely in machinery and equipment, metals and metallurgical raw materials, and fuel, and in this connection the share of heavy industrial products in the total volume of the Soviet Union's exports will rise to about 80% by the end of the seven-year period.

On the basis of the further growth in exports during the years of the seven-year plan the Soviet Union will substantially expand its purchases of commodities from other countries. Carrying out the great construction program and the new powerful upswing in industrial production opens up great possibilities for expanding the importation of means of production, various types of machinery and raw materials. Machinery and equipment imports will increase substantially, particularly from socialist countries. Foreign trade will play quite an important role in accelerating the periods of technical reconstruction of individual branches of the national economy of the Soviet Union. In particular, imports of chemical equipment will serve to hasten the realization of plans for the rapid development of the chemical industry; the import of power transformers, rectifiers and other electro-technical equipment will aid in the most rapid solution of problems in intensifying power capacity; imports of main-line electric locomotives, motor locomotives and other transportation equipment will make it possible to hasten the technical reconstruction of our railroad transportation. In the period of the seven-year plan the Soviet Union will also substantially expand its purchases of many types of raw materials for the rapidly developing socialist industry.

Another important tendency in the development of USSR imports in the current seven-year plan is the substantial increase in imports of consumer goods and the raw materials for their production with a simultaneous great increase in the production of consumer goods in the country. As a result of this the share of consumer goods and raw materials in the total volume of imports will grow considerably by the end of the seven-year plan.

The realistic nature of the seven-year plan for the development of the national economy is based on a sober consideration of all the available internal resources and possibilities of the country. The expansion of the Soviet Union's foreign trade will help in hastening the fulfillment of the individual economic tasks of the seven-year plan and, therefore, in fulfillment of its program as a whole.

In western countries some political figures have tried to present the readiness of the Soviet Union to develop its foreign ties as meaning that the fulfillment of the seven-year plan depends upon our country developing trade with capitalist states. An exhaustive answer on this matter was given by Comrade N. S. Khrushchev at a press conference on March 19, 1959: "I would like to 'calm' these gentlemen: If trade with western countries not only fails to expand but ceases completely, even in this situation the seven-year plan will be fulfilled. Our plan is prepared by considering our internal possibilities."

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The entry of several European and Asian states on the path of socialist development after the second world war has caused fundamental changes in the international situation. Previously, the Soviet Union, the first country of victorious socialism, had to build a new society under conditions of hostile capitalist encirclement. Now, a great union of free brotherly socialist nations has been formed, united in the common interests of building socialism and communism and in defending peace.

Based on the principles of socialist internationalism, the new type of relations between countries of the socialist camp is infused with the spirit of brotherhood and comradely mutual assistance. In the world socialist system there exist genuine equal rights for large and small peoples, who grant one another all-sided assistance in economic development and are interested in each other's achievements and, therefore, in strengthening their common might. All of this creates the conditions for the most rapid rise of the economically backward countries to the level of the advanced ones, for a gradual levelling in the general line of economic and cultural development of all socialist states.

The Soviet Union, the first country in the world to have built a socialist society, and economically the most powerful socialist state, has objectively become the center of the solidarity of the socialist world, the major force in the development and strengthening of the world socialist system. The economic importance of the USSR in the system of the world socialist economy is determined by the fact that its share in the industrial production of the countries of the socialist camp is two-thirds and in the commodity

turnover of the new world market it is more than one-third. The socialist economy of the USSR is the most important factor in the steady strengthening of the world socialist system and in ensuring the economic independence of every socialist country. Through close economic collaboration with the USSR the countries that have entered the path of socialist development after the second world war have received the possibility of successfully building a socialist economy, of developing their national economy in an all-round manner without the danger of being crushed by the capitalist powers and losing their independence.

The establishment of close all-round collaboration between the Soviet Union and the other socialist countries has opened the path to a steady and firm development of the Soviet state's foreign economic ties in accord with the possibilities created by the mighty growth of the country's productive forces. The planned expansion of the national economy of the USSR in the prewar period also created the growing material prerequisites for increasing the country's international trade turnover. However, the hostility of the imperialist powers to the socialist state hindered the realization of these possibilities. The situation fundamentally changed with the triumph of the people's democratic societies in a number of European and Asian countries.

The Soviet Union's trade turnover with socialist countries is growing from year to year. In the period from 1946 to 1958 it increased from 3.1 billion to 25.5 billion rubles. The high rates of growth of trade turnover are being attained on the basis of a steady economic expansion of all socialist states and the indissoluble firmness of the brotherly collaboration between them. At the same time the rapid development of trade relations and other forms of economic collaboration between the USSR and other socialist countries are a result of the Soviet Union's granting brotherly assistance to these countries in the construction of socialism, in carrying out industrialization, in expanding their economies as a whole.

One of the advantages of the mutual economic collaboration of the countries of the world socialist system consists in the fact that the planned nature of their national economic development predetermines a steady, planned expansion of trade turnover between them. The foreign trade turnover between the USSR and the other socialist countries is conducted chiefly on the basis of long-term agreements for the mutual supply of commodities which are tied in to their national economic plans.

The structure of the Soviet Union's trade turnover with each of the socialist countries reflects the peculiarities of its economic development and changes in accord with changes in the national economy and its needs.

The many-sided development of the Soviet national economy permits the Soviet Union to establish, with the people's democracies, a mutually advantageous structure of trade turnover and in this way to meet, by means of exchange, the most important requirements in various commodities both for production needs as well as for the satisfaction of the demands of the population. Thus, the Soviet Union supplies China primarily with machinery and equipment, as well as those commodities which the Chinese people need in order to transform into life the country's plans for industrial development. In turn, the Soviet Union purchases from China mainly the products of its agriculture and its extractive industry. The USSR's trade turnover with the German Democratic Republic, as a highly developed industrial country, has a different structure. In Soviet exports to the GDR, supplies of fuel and various raw materials to ensure the development of its industry predominate, as well as types of food in which the republic is deficient. At the same time the Soviet Union imports from the GDR chiefly machinery and equipment, as well as a number of other industrial items.

Supplies of Soviet commodities meet a considerable part of the import requirements of the socialist countries, as the following figures for the European people's democracies, for example, testify:

The Share of the USSR in Total Imports of Major Commodities of European People's Democracies (in %)

	1950	1957
Machinery and equipment	28.6	26.5
Iron ore	65.0	74.7
Pig iron	68.1	84.0
Rolled steel and pipes	48.9	57.5
Non-ferrous metals	26.5	5[illegible].4
Oil	47.3	9[illegible].1
Oil products	62.6	58.[illegible]
Timber materials	12.7	63.1
Cotton	79.3	66.7
Grains	77.9	83.9

The high share of Soviet commodity supplies in the imports of the people's democracies, which are designed to meet their national economic requirements, is an important factor in the steady economic development of these countries. For the people's democracies, their mutual trade is of great importance in meeting their internal requirements. All of this ensures every socialist country of necessary sources of supply of machinery and equipment for carrying out industrialization plans, for obtaining scarce types of raw materials required for the uninterrupted operation of industry, for replenishing market funds of scarce consumer goods to meet the growing demand of the population. Large-scale purchases by the Soviet Union of various goods produced for export by the people's democracies are of great importance in the stable marketing of their national economic output. Thus, on the new world socialist market, countries are finding a stable and constantly growing market for their output; this market is not subject to the business fluctuations inherent in the world capitalist market. This is of great importance for the economic development of all socialist countries, for their successful fulfillment of tasks in the further growth of production and national consumption, for the victory of socialism in peaceful economic competition with capitalism.

As the basis of prices on the world socialist market, use is made of world prices from which speculative elements and sharp fluctuations of a business character are removed. Prices on the new world market are stable over long periods. A characteristic feature of the world socialist market is that, in contrast to the capitalist market, a plurality of prices is excluded from it. In accord with the tasks of developing the planned economies of socialist countries, the system of price formation in the new world market is constantly being improved.

The seven-year plan for the development of the national economy of the USSR provides for a further strengthening of the many-sided economic ties between our country and other countries of the socialist camp.

The high rates of economic expansion, which are a common regularity of the development of all socialist countries

are also accompanied by high rates of growth in their mutual trade and an expansion in other forms of economic collaboration. In 1965 the foreign trade turnover of the Soviet Union with socialist countries will grow by 1.5 times compared with 1958.

The successful development of economic collaboration between countries of the world socialist system, united by a common social-economic structure and goal in building a new society, make it possible for them to undertake a comradely coordination of their national economic plans, a deepening of the international division of labor in the world socialist system. The socialist countries' conduct of mutual trade on the basis of long-term agreements ensures, for several years ahead, that each country will obtain the commodities it needs from friendly countries and will sell its export commodities to these countries in exchange. Determining the volume and structure of mutual trade deliveries through long-term agreements makes it possible for socialist countries to consider their mutual requirements in preparing national economic plans, and in this way to improve their coordination. With the transition to higher forms of coordinating the socialist countries' national economic plans, such as coordination of capital investment plans, production plans, inter-state specialization and cooperation in production as well as coordination of plans to sell the output of interconnected branches, the socialist international division of labor will be further strengthened.

Strengthening the coordination of economic development plans in accord with the requirements of objective economic laws of socialism is of great significance for all countries of the world socialist system. This opens up greater scope for the operation of the law of planned, proportional economic development in all socialist countries. It is perfectly clear that for many socialist countries who are to a large extent dependent on foreign markets, planned economic development would be extremely difficult without extensive economic ties with other countries of the world socialist system. Thanks to mutual economic ties these countries find it possible to ensure a stable and steady expansion of their national economy, to successfully realize the basic advantages of the socialist economic system. The coordination of economic development plans helps to accelerate the rates of economic development of every socialist country. Socialist international division of labor makes it possible for every socialist country to obtain a larger social product with given expenditures of materials and labor. In this connection, wide perspectives are opened up with the development of inter-state specialization and cooperation in production, with the concentration of forces on the production of those types of products for whose output the given country is most advantageously situated. In this way a considerable increase in output of goods is secured with a given productive capacity, production costs are much reduced, and labor productivity is increased. The fundamental advantage of the international division of labor in the world socialist system over the international division of labor in the world capitalist economic system is that it promotes the all-round development of productive forces in all countries rather than in only some of them, and it leads to a steady economic expansion of all countries rather than in only the economically stronger ones.

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In its economic mutual relations with capitalist countries the Soviet Union stands on the Leninist principle of peaceful co-existence of states with differing social structures. The consistent struggle for peace lying at the basis of the Soviet Union's foreign policy is indissolubly linked with our country's internal policy directed toward a steady expansion of a peaceful economy and the well-being of the people.

One of the characteristic features of the postwar development of the USSR's foreign economic ties is the successful expansion of collaboration with economically underdeveloped countries. The essence of the mutual relations of the Soviet Union with economically underdeveloped countries consists in the affirmation of new principles of genuine equal rights based, as V. I. Lenin pointed out, "on a complete break with the barbarous policy of bourgeois civilization which based the well-being of exploiters in a few selected nations on the subjugation of hundreds of millions of working people in Asia, in colonies in general and in small countries." (2)

The achievement of political independence by a number of economically underdeveloped countries permitted them to take the path of broad economic collaboration with the Soviet Union and other socialist states. Close collaboration with the Soviet Union and other socialist countries makes it possible for the countries which have achieved political independence to strengthen their state independence and gradually to liquidate the economic backwardness inherited from colonialism. The socialist states, in developing trade-economic relations with economically backward countries, help them in carrying out national economic programs, in liquidating one-sidedness in the development of their national economies and in achieving an over-all economic expansion which raises the living standards of the population.

The Soviet Union's purchases from economically underdeveloped countries of products which these countries usually export widens the possibilities of marketing their output and exercises a beneficial influence on the development of the corresponding branches of their economies. At the same time the Soviet Union's purchases of commodities are not subject to business fluctuations and this is of great importance in ensuring the necessary stability in the volume of exports of economically underdeveloped countries.

In exchange for their products the economically underdeveloped countries have the possibility of purchasing from the Soviet Union commodities necessary for the development of their national economies, in particular various kinds of industrial equipment which generally cannot be obtained from capitalist countries under acceptable conditions. In its trade relations with economically underdeveloped countries the Soviet Union does not force any kinds of commodities on them, nor does it utilize exports to create difficulties for the development of these countries' national economies. An important feature of the Soviet Union's trade with other countries of the world is that it is conducted on the basis of a mutually acceptable system of trade accounts that do not create foreign exchange difficulties. This factor is of particular importance for the economically underdeveloped countries. Thanks to the existence of the states of the socialist camp and to economic collaboration with them, the countries which were previously in a dependent position now have the possibility of defending their interests, of opposing the imposition of one-sided agreements by the imperialists, of obtaining more favorable conditions for themselves in their trade ties with capitalist countries.

The Soviet Union's volume of foreign trade with economically underdeveloped countries between 1953 and 1958 grew from 0.5 billion to 3.2 billion rubles, that is, it increased by more than 6 times. Mutually advantageous trade agreements are successfully developing on a stable basis between the Soviet Union and India, Indonesia,

Afghanistan, Iraq and other countries. The trade turnover between our country and the United Arab Republic has reached a substantial size in recent years.

Along with trade relations other forms of economic collaboration have also developed considerably between the Soviet Union and underdeveloped countries. The USSR grants them many-sided economic assistance in industrial development, above all in creating enterprises of heavy industry, in solving urgent problems in expanding agricultural production, organizing a modern public health system, training native cadres, and so on. A characteristic example is the Soviet Union's help to India in the construction of metallurgical combine in Bhilai, heavy machine-building plants and a considerable number of enterprises in other branches of industry.

In accord with an agreement concluded in March 1959, the USSR is collaborating with the Iraqi Republic in carrying out plans for the development of its national economy (in the spheres of industry, agriculture and transportation). In particular, the Soviet Union will grant assistance to Iraq in the construction of several enterprises in the machine-building, chemical, food and light industries. As representatives of the Iraqi Republic pointed out, the conclusion of the Soviet-Iraq agreement will help Iraq in solving a number of important economic problems, in rapidly overcoming the heritage of colonialism, in strengthening the country's economic independence, in raising the material well-being and cultural level of the Iraqi people.

It should be particularly emphasized that the Soviet Union takes no part in attempting to participate in the profits or the administration of the enterprises built with its aid in other countries, in establishing its control over their operation. This stems from the basic principles of the socialist state's policy which do not permit any kind of restriction of national sovereignty. The enterprises built with the aid of the USSR are the complete property of the countries in which they are built.

The economically underdeveloped countries are hindered in accomplishing plans for expanding their national economies by a shortage of internal resources. This is why financial assistance from socialist states is such a highly important factor for these countries. The Soviet Union in recent years has granted several billion rubles in credits to the underdeveloped countries of the East to pay for equipment and materials supplied to them for the construction of enterprises and has also given them assistance in the technical sphere. The Soviet Union grants credits to other countries not because it has unused resources available for profitable investment abroad. Our country allocates part of its resources in order to assist countries taking the path of independent development to liquidate the burdensome consequences of the period of colonial oppression.

The defenders of colonial rule are not in a position to impede the invincible movement of the people of underdeveloped countries toward independence and national prosperity. The struggle of the imperialists against the liberation movement of the peoples of dependent and colonial countries is proceeding along two lines. First, they would like to choke the strivings for independent national development of the countries struggling for independence and to liquidate the independence of those countries who have already won it. To attain their ends the imperialists resort to open suppression of the liberation movement, as well as to methods of concealed subordination of underdeveloped countries by means of their economic enslavement through various types of imperialist programs of "development" and "aid" to backward countries. On the other hand, the imperialist countries try in every way to disturb the creation of economic collaboration between the countries taking the road of independent development and the socialist states, seeing in this the final failure of the colonial system.

The seven-year plan of the Soviet Union as well as the long-term plans for economic development of the people's democracies open up broad perspectives for the further strengthening and expansion of all-sided economic collaboration between the socialist states and the underdeveloped countries of the world. The realization of all available possibilities in developing this collaboration will help the economically underdeveloped countries in solving pressing problems of expanding their national economies and ensuring their independence.

The Soviet government is constantly taking steps to develop trade relations with all countries of the world and for an all-sided extension of international economic collaboration on a healthy basis. However, adherents of the "cold war" are trying to disturb such collaboration by creating artificial obstacles in international trade, by conducting the already bankrupt embargo policy and trade discrimination in regard to the socialist countries.

The persistent struggle of the Soviet Union for normalizing the conditions of international trade turnover is not at all due to any harm caused to the economies of the USSR or other socialist countries by the trade discrimination carried out by some capitalist states. If the public criers of the "cold war" hoped to cause economic difficulties in socialist countries by disrupting their trade relations with capitalist countries, then they badly miscalculated. The steady economic expansion of the socialist countries clearly testifies to their invulnerability in regard to such disruptive actions of the imperialists. The attempts of the inspirers of aggressive anti-socialist blocs to bring about the economic isolation of the socialist countries with the help of various trade prohibitions have suffered a complete failure. As we know, the attempts of the USA to force the members of the North Atlantic aggressive bloc to cease trade with countries of the world socialist system were also unsuccessful.

Despite all the obstacles imposed by imperialist circles, the Soviet Union's trade with capitalist countries not only did not decline but, on the contrary, it is gradually but steadily increasing. The total volume of trade turnover between the USSR and the industrially developed capitalist countries in 1958 exceeded the 1950 level by more than 2.5 times. In this connection the Soviet Union is now conducting trade with many western European countries on the basis of long-term agreements. Such agreements have been concluded between our country and, for example, France, Italy, the FGR, Sweden, Norway, Iceland, Austria, and Greece. In May of this year the first long-term trade agreement in the postwar period between the USSR and England was signed. Trade between the Soviet Union and Finland in the postwar period has been conducted in accord with long-term agreements. Experience has shown the usefulness of this kind of agreement in developing trade between countries having different social-economic structures.

Trade negotiations conducted recently between the Soviet Union and a number of countries of the capitalist world have concluded with the signing of new agreements providing for a further growth in mutual trade turnover. Thus, in accord with the long-term agreement between the USSR and Italy on mutual deliveries of goods during 1958-1961, the volume of trade turnover for 1959 provides for a sum of more than 600 million rubles, that is, a doubling as compared to 1958. In the agreement between the USSR and France for mutual deliveries of goods during 1960-1962 the trade turnover between the two countries in the three-year period will grow

by more than 20% in comparison with the expected volume of trade turnover in 1957-1959. The agreement on trade turnover during 1959-1961 between the USSR and Sweden provides for an approximate doubling in the volume of trade between the two countries by 1961 as compared to 1958. A considerable growth in turnover is also expected in the USSR's trade with England.

All of this, of course, does not mean that the artificial limitations created by imperialist circles for political and military-strategic considerations do not hinder the development of trade between the western European countries and the Soviet Union. While the volume of this trade is increasing from year to year, because of the currently existing tensions in the international situation not all available possibilities are being utilized, by any means.

The seven-year plan for the development of the national economy of the USSR opens up favorable perspectives for the expansion of trade relations between our country and countries of the capitalist world. The new powerful expansion of industry and agriculture permits the Soviet Union to offer interested countries larger amounts of usually exported commodities as well as new types of products and, simultaneously, to increase purchases of commodities it is interested in and to place orders for various types of machinery and equipment. The Soviet Union is prepared to undertake a considerable expansion of trade with all countries.

However, the realization of these possibilities will depend on the readiness of capitalist countries for international collaboration on a normal and healthy basis, as well as on the successes of the forces of peace and democracy in the struggle for peaceful co-existence, for checking adventurist elements who are preparing reckless interventionist plans.

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The enemies of peace and international collaboration are active in a struggle against the increasingly intense strivings of various countries for economic and cultural collaboration with the states of the socialist world. In this connection they resort to slanderous fabrications usually found in hostile propaganda spreading false versions to the effect that trade between capitalist countries and the Soviet Union cannot reach sizable proportions, is unprofitable and even dangerous for these countries. One of the preferred examples of hostile propaganda is the statement that the Soviet Union uses its foreign trade for political purposes for exercising pressure on the other countries and subordinating them to its control.

A connection exists, of course, between the foreign trade and political relations of states. The whole question is what policy and what purposes do the economic ties between states serve.

The Soviet government is constantly presenting constructive proposals designed to improve political mutual relations between states as well as to develop extensive economic ties between them. In this connection, the practical steps of the Soviet Union in the sphere of normalizing political mutual relations exercise favorable influence on the development of world trade and the expansion of international economic collaboration in its turn promotes the growth of confidence and strengthens the general relations between states, consolidating peace between peoples.

The refusal of the governments of the USA and several other capitalist countries holding to the course of American policy to undertake a normalization of international political relations and economic collaboration shows the true intentions of the governments of these countries. While speaking words of peace and the development of international trade, in reality they reject Soviet proposals designed to achieve these ends.

The statements of the apologists of imperialism on the imaginary danger of subordination of countries to Soviet control as a result of developing trade with the USSR are the next attempt to distort the purposes of the foreign policy of the socialist state. It is known that the Soviet Union builds its relations with all countries on the basis of full equality, non-intervention in internal affairs, and mutual benefit. By means of economic collaboration the Soviet Union is striving to assist various countries in their independent economic development. Of course, such international collaboration threatens the interests of the imperialists and they slander the Soviet Union, trying to assign alien purposes to it, diverting attention from their own new plans of strengthening the crumbling system of colonialism and crushing the irresistible movement of the people for independent national development.

There are also no grounds for the attempt of the enemies of socialism to accuse the Soviet Union of carrying out a policy of economic autarchy, seclusion and isolation. There is no need to demonstrate, particularly now, the complete groundlessness of these declarations. The Soviet state has consistently held and now holds to a course of the widest possible development of economic ties with countries of the capitalist world. If in certain prewar years the trade turnover of the USSR with capitalist states did not expand, this was the result of a hostile policy of the imperialist powers toward the Soviet state. The USSR in its trade relations with capitalist countries always bases itself on the interests of ensuring the independence of the socialist economy. However, this by no means signifies the creation of an isolated economy. The independence of the Soviet economy does not at all exclude the development of extensive all-sided trade ties between the Soviet Union and other countries of the world, and the USSR is constantly striving to establish such ties.

The enemies of economic collaboration between capitalist states and socialist countries are now once again circulating the version of the autarchy of the socialist system. They state that the countries of the socialist camp are conducting a policy of economic self-sufficiency, of meeting their requirements from their own resources, developing trade with countries of so-called private initiative. The fact that the principal share of the foreign trade turnover of each socialist country is in its trade with other socialist countries is not accidental; this is determined by the fundamental interests of their economic development. Socialist countries, naturally, cannot depend on the satisfaction of their basic national economic needs by going on the world capitalist market with its feverish business fluctuations and whims of the trade policy of the imperialist powers. The close mutual economic collaboration between socialist countries promotes their successful economic development, ensures their economic independence and invulnerability in case of intrigues by capitalist monopolies. However, this by no means excludes the possibility of a considerable expansion in the volume of trade between every socialist country and the countries of the capitalist world. The socialist countries have the necessary material prerequisites for an expansion of such trade.

Those who create hostility between people declare that the USSR's seven-year plan is designed to achieve the world claims of communism and that it embodies the danger of an economic offensive by the USSR against the western world. Everyone knows that the Soviet Union has called on the capitalist countries to end competition in the armaments

(Continued on Page 56).

E. Sokolova:

Changes in the Structure of Fuel Consumption During the Seven-Year Plan

The control figures for the development of the national economy of the USSR during 1959-1965, ratified by the 21st Congress of the CPSU, provide for a powerful development of the fuel-power base of the country. The chief tendency in the development of the fuel industry is a further rapid increase in the production of the most economical types of fuel, oil and natural gas.

The production of all types of fuel (converted to conventional units) will be more than 1 billion tons in 1965, that is, it will grow by 1.7 times as compared to 1958. In this connection oil extraction will increase to 230-240 million tons or more than double the 1958 level, the extraction and production of gas will increase to 150 billion cubic meters or by 5 times, coal extraction will increase to 600-612 million tons or by 21-23%. The more rapid increase in oil and gas production will ensure a further improvement in the structure of our country's fuel balance. In 1965 the share of the most caloric and cheapest types of fuel, oil and gas will be more than one-half of total fuel production, while now it is about one-third.

Progressive changes in the structure of the fuel balance ensure an increase in the productivity of social labor and are an important factor in accelerating the rates of economic development of our country, in creating the material-technical base for communism and in fulfilling the basic economic task of the USSR. The high rates and the necessary proportions in the development of the fuel-power economy provided in the seven-year plan represent a major condition for solving the fundamental problem of the seven-year plan, the problem of the maximum winning of time in the peaceful economic competition between socialism and capitalism.

The USSR already considerably exceeds the USA not only in the rates of growth but also in the absolute growth of production of fuel and power. Thus, in the USA in the period between 1950 and 1957 the production of primary power resources increased by an average of 36 million tons per year (converted to conventional fuel units), while in the USSR in 1957 alone it grew by 65 million tons. As a result of accomplishing the program of developing the fuel industry contemplated in the seven-year plan, our country will come considerably closer to the level of fuel production in the USA. In 1957 the production of all types of fuel (converted to conventional units) in the USSR was 40% of the production level in the USA, and in 1965 it will exceed 65% of the expected level of fuel production in the USA in 1965.

In all branches of the national economy of the USSR in the coming seven-year period profound qualitative changes will occur. These structural changes will be reflected, in particular, in the relationships of fuel expenditures among the branches of economy. Thus, the accelerated development of the chemical industry, and first of all the production of synthetic rubber, artificial fiber, and plastics will lead to a substantial increase in the share of this branch in the consumption of fuel-power resources. With the development of modern technique there is a growth in requirements of non-ferrous and rare metals. Progressive branches of machine building based on the application of the newest achievements in science and technique will develop rapidly. Particularly substantial changes in the structure of the expenditures part of the fuel balance of the country will be caused by the accelerated development of thermal electric power, the further development of ferrous metallurgy, and by carrying out fundamental technical reconstruction of railroad transportation. In this connection the most rational structure of consumption of various types of fuel will be achieved in all branches of the economy.

The creation of a material-production base for a communist society requires the all-round electrification of the national economy. A mighty expansion of the country's electric power base, provided for in the seven-year plan, will be a most important factor in fundamentally changing the structure of fuel consumption.

The Share of Individual Branches of Production in the Consumption of Fuel
(in conventional fuel; in % of the total)

	1958	1965
Industry and construction of which:	61.8	72.3
Electric power stations*	22.7	28.3
Production of pig iron, steel, rolled metal	15.3	18.2
Cement industry	1.2	1.9
Other branches of industry	22.6	23.9
Agriculture	1.2	0.9
Railroad transportation	12.5	3.3
Sea transportation	0.6	0.7
Communal economy	20.8	19.4
Other non-industrial users	3.1	3.4

* Excluding heat expended for communal-everyday needs.

Thus, the principal users of fuel in the seven-year period will be electric power stations, ferrous metallurgy and the communal economy. Their share in total fuel expenditures will grow from 58.8% in 1958 to 65.9% in 1965. In connection with the shift to motor locomotive and electric locomotive traction, the consumption of fuel in railroad transportation will decline sharply. In 1965 85-87% of the country's total freight turnover will be carried in electric locomotives and diesel locomotives, while in 1958 the figure was only 26%. This will give the national economy a tremendous saving of fuel. With a growth in the volume of railroad transportation activity by 46% during the seven-year period, the need for fuel in transportation will diminish 2.5 times.

Expenditures of fuel for communal-everyday needs will increase by about 1.5 times during the seven-year period, which is to stem from a sharp expansion in the housing supply and a further development of the communal economy. However, the share of the communal economy in total fuel

expenditures will remain almost stable because of the more rapid rates of growth in fuel consumption by industry.

The development of ferrous metallurgy will cause a further increase in the use of fuel by this most important branch of industry. Fuel expenditures in the production of ferrous metals during the seven-year period will amost double, and the share of ferrous metallurgy in total fuel consumption will rise from 15.3% to 18.2%.

Agricultural production is not among the branches using much fuel. An exception exists only in the case of light oil products which are not included directly in the fuel balance as primary power resources. The share of agriculture comes to almost 20% of the total consumption of light oil products for production-operational needs, including 40.5% of diesel fuel and 80% oi tractor kerosene.

In 1965 electric power stations will expend 28.3% of total fuel resources for the production of electric and thermal power, while now their share is 22.7%. The preferential development of thermal electric power stations will lead to a further growth in the consumption of fuel by the electric power industry. As provisional estimates show, it will reach about 37% of total fuel expenditures in the national economy by 1972. 82% of electric power is already produced with mineral fuel. In the future the share of fuel resources as a source of power for producing electricity will grow because of a relative decline in the share of hydropower. At the same time, successes in solving scientific-technical problems in the peaceful utilization of nuclear energy will bring about a systematic increase in the share of atomic electric power stations in the electro-balance of the USSR. In the future in many regions of the country it will become economically effective to replace thermal electric power with atomic power, and this will permit the release of substantial resources of mineral fuel and will improve the country's fuel balance. The utilization of the hydropower resources of the many Siberian rivers will also have the same effect on the fuel-power balance because hydropower construction here is characterized by high indices of economic effectiveness compared to the indices for the largest thermal electric power stations.

At the present stage technical progress is leading to a situation in which the primary types of fuel are being increasingly replaced by electric power in the fuel-power balance of branches of the national economy. Consequently, a constantly growing part of fuel extraction is being channeled to electric power needs.

In all branches of production there is occurring an intensive process of the replacement of primary types of fuel by electric power. This tendency may be observed in the example of the power balance in railroad transportation.

Up to now the principal source of power in railroad transportation has been the power of the coal burned in locomotive furnaces. It accounted for 90-92% of the total fuel-power balance of railroads. In the current seven-year period the structure of the power balance in railroad transportation will be fundamentally changed. The share of coal will decline from 86.5% to 11.5%, the share of mazut and diesel fuel will increase from 7.4% to 51%, and the share of electric power will increase from 5.8% to 37.6%. As a result of these structural changes the expenditure of fuel (converted to conventional units) per ton kilometer of transportation will decline by almost 3 times and this will make it possible to economize on about 64 million tons of conventional fuel in 1965. The electrification of railroads will ensure, together with fuel economies, a considerable improvement in the technical-economic indices of their operation. The prime costs of their operation will decline by 20-25% and the traffic capacity of electrified roads will approximately double.

The development of railroad transportation is the clearest but not the only example of the intensive replacement of various types of fuel by electric power. The same process is also taking place in various branches of industry. The increasing importance of electric power as the principal source of power in production processes arises from the extensive utilization of individual and multi-engined gears in modern industrial equipment, and the development of electro-technological processes, above all of electrothermy and electro-chemistry.

As noted above, the consequence of progressive changes in the fuel-power balance of industry is the absolute and relative growth in the consumption of fuel by electric power stations (from 22.7% of total fuel consumption in 1958 to 28.3% in 1965). In this connection, along with quantitative growth in fuel consumption by electric power stations its qualitative structure is also changing.

Consumption of Fuel and Electric Power by Regional Thermal Electric Power Stations
(in conventional fuel; in % of total)

	1950	1955	1957	1965
Coal	71.2	71.4	65.9	56.8
Oil fuel	7.1	7.5	7.3	12.6
Natural gas	0.5	3.4	8.6	17.4
Shale oil	0.7	0.9	0.9	1.4
Peat	12.7	9.3	8.3	5.7
Fire wood	0.3	0.2	0.2	0.2
Electric power	7.5	7.3	8.8	5.9

As may be seen from the table, during the years of the seven-year plan the consumption of natural gas and oil fuel by regional electric power stations will increase substantially. The share of these types of fuel will grow while the share of coal and peat will decline. While the share of peat in the fuel balance of electric power stations will deminish because of the limited scope of its production, regional electric power stations will remain the principal consumers of this type of fuel. In 1957 their share in the total quantity of peat expended on production-operational needs in all branches of the national economy of the USSR was 42%.

Shale oil and peat are low caloric fuels. The utilization of these types of fuel for power is feasible only in specialized boiler-furnace installations in regions of their extraction. The most rational users of shale oil are large electric power stations. In the current seven-year period the powerful Baltic Hydroelectric Power Station, operating on shale oil, will be built and put into operation. In this connection the share of shale oil in the total fuel consumption of regional electric power stations will increase somewhat. Along with electric power, gas-shale oil and shale oil-chemical combines are large consumers of shale oil. In 1955 their share of total shale oil expenditures was 74.6% and in 1965 the share of these consumers will increase to approximately 85%. Oil fuels (sulphurous and binding mazuts) are used in electric power chiefly at central heating plants of oil processing factories and at electric power stations located in oil extracting regions.

Despite the sharp increase in the consumption of mazut and gas by electric power stations, coal remains the principal type of fuel in electric power. The consumption of coal by regional electric power stations will grow by 1.6

times in 1965 as compared to 1958. The share of these electric power stations in the total expenditures of coal will be 33.5%, while now it is 24.7%. During the years of the seven-year plan a number of large thermal electric power stations will be built which will be based on the coal deposits of the eastern regions of the country, which are worked by the open-pit method and are distinguished by low prime costs of extraction. The prime cost of 1 kwh. of electric power at these stations will be 1.6-2 kopecks. The increase in the share of the most economical types of fuel, gas, mazut and cheap coal from the eastern regions in the balance of thermal electric power stations will ensure a considerable reduction in the prime costs of electric power in the country as a whole.

For the purpose of determining the most effective means of rationalizing the fuel balance of electric power stations, an analysis of the structure of the power balance of the power industry of the United States of America deserves attention. The structure was characterized by the following figures in 1954: 50.7% of all electric power was produced from coal, 6.7% from oil, 19.8% from gas, 0.1% from wood, 22.7% from hydropower. During the postwar years in the USA the share of electric power produced from gas increased sharply (from 9% in 1947 to 19.8% in 1954) while a decline occurred in the share of hydropower (from 30.7% to 22.7% respectively) and oil fuel (from 10.2% in 1950 to 6.7% in 1954). The share of coal in the balance of primary power resources of American electric power stations had a tendency to decline until 1950 (from 53.6% in 1947 to 46.9% in 1950). However, in the following years the share of coal in the fuel balance of electric power began to increase in connection with the development of the open-pit method of coal extraction and the cheapening of its cost. The tendencies in the development of the power balance of Soviet electric power are in many ways reminiscent of the structural changes in the fuel balance of electric power stations in the USA. This reflects common regularities in the technical progress of modern industry.

The replacement of fuel by electric power and an increase in the share of oil and gas in the structure of fuel consumption are characteristic features of the development of the fuel-power balance of our national economy. In various branches of industry this general tendency appears in different forms, something that stems from the specific nature of the technological process in the corresponding branches of production. Thus, a characteristic feature of the power balance in the chemical industry is a high share of electric power, as the following figures testify:

The Structure of the Fuel-Power Balance in the Chemical Industry (in conventional fuel; in % of the total)*

	1950	1957
Coal	40.7	37.4
Oil fuel	3.7	4.5
Peat	0.7	0.4
Firewood	1.6	0.8
Natural gas	0.2	1.2
Electric power	53.1	55.7

* In this and the following tables characterizing the structure of the fuel-power balance of individual branches of industry, the fuel consumed by their own electric power stations is included in fuel resources.

In the current seven-year period important changes will occur in the structure of fuel and electric power consumption in the oil industry, in particular, a substantial rise in the share of electric power and gas. This is connected with an extensive application of electro-technology (electrolysis, electrothermy), the introduction of new technique, and the development of mechanization and automation. The production of such types of chemical output as synthetic rubber, artificial fiber and others requires a great deal of electric power. Thus, the production of one ton of synthetic rubber on a butane base requires 2 thousand kilowatt hours of electric power and the production of one ton of artificial fiber requires 10-17 thousand kilowatt hours.

It should be noted that gas has not yet taken its proper place in the fuel-power balance of the chemical industry. During the years of the seven-year plan its role as a technological fuel and particularly as a raw material in the production of many valuable chemical products will increase sharply. The May (1958) Plenum of the CPSU projected the construction of several large enterprises for the production of synthetic fibers, plastics, rubber and other materials based on a many-sided utilization of the most valuable and cheapest types of raw materials, such as gas obtained in oil extraction, oil processing gas and natural gas. The extensive use of gas as a chemical raw material is of great advantage to the national economy and permits substantial amounts of economies of food products: grain, potatoes, livestock and vegetable fats, and so forth. Carrying out the decisions of the May Plenum of the CC of the CPSU and the 21st Congress of the CPSU in the sphere of developing the chemical industry will lead to a sharp increase in gas consumption by this branch.

A most important feature of the fuel-power balance in ferrous metallurgy is the high share of coal, which stems from the character of the technological processes in metallurgy (in ferrous metallurgy more than 70% of the coal is expended in the burning of coke). As may be seen from the table below, coal constitutes three-fourths of the total consumption of fuel-power resources in metallurgy (including ferrous and non-ferrous).

The Fuel-Power Balance in the Metallurgical Industry (in conventional fuel; in % of the total)

	1950	1957
Coal	79.5	75.4
Oil fuel	4.2	4.8
Peat	0.4	0.2
Firewood	1.5	0.9
Natural gas	—	0.5
Electric power	14.4	18.2

The absolute amount of electric power consumption in the metallurgical industry in the period from 1950 to 1957 increased by 2.2 times. This is explained by an expansion in the production of electric steel and non-ferrous metals, mechanization and automation of production processes. Further technical progress in ferrous and non-ferrous metallurgy will lead to a rise in the share of electric power in the structure of the fuel-power balance in this branch.

The consumption of gas in the metallurgical industry will grow substantially. Natural gas is cheaper than mazut. Therefore, the replacement of mazut by natural gas as a technological fuel in open-hearth production will have a

great economic effect. With the transfer of open-hearth furnaces to natural gas their productivity will rise. The use of gas in blast furnace production is also highly effective. As L. I. Brezhnev pointed out in his speech at the 21st Congress of the CPSU, the use of gas in open-hearth and blast furnaces will economize on a great deal of fuel. The work of blast furnaces in leading metallurgical plants testifies to the particularly high effectiveness of applying gas in combination with oxygen.

Thus, the structure of the fuel-power balance in the metallurgical industry will change in the direction of an increasing share of electric power and natural gas, with some decline in the share of coal, although coal will remain the principal type of fuel because of the technological peculiarities of this branch.

Progressive changes are also occurring in the structure of fuel consumption in light industry. Thus, in the period from 1950 to 1957 the share of the less economical types of fuel — peat and firewood — declined respectively from 24.7% to 14.2% and from 6% to 2.6%, while the share of coal rose from 38.6% to 42.6%, of oil fuel from 3.6% to 7.2%, of natural gas from 0.3% to 1.6% and of electric power from 26.8% to 29.2%. The principal resources in the fuel-power balance of light industry are now coal, peat and electric power.

A considerable part of the textile enterprises of the Center now operate on peat. However, preparation for the working of new peat supplies is not economically effective; for this reason the use of peat by light industry will decline and the use of coal will increase. Technical progress in light industry is leading to an increase in the absolute amount of electric power consumption and a rise in its share in the fuel-power balance; this progressive process will be further developed in the seven-year plan.

In 1957 the share of the food industry in the total consumption of fuel in the national economy was 4%. The principal type of fuel in this branch is coal; in 1957 it constituted 63.7% of the fuel consumed in branches of the food industry. Changes in the structure of fuel consumption in these branches are characterized by the following figures:

The Fuel-Power Balance of the Food Industry
(in conventional fuel; in % of the total)

	1950	1956	1957
Coal	62.9	66.0	63.7
Oil fuel	6.9	9.5	10.8
Shale oil	0.1	0.1	0.3
Peat	8.0	5.9	4.4
Firewood	11.5	6.2	4.6
Natural gas	1.0	1.9	3.6
Electric power	9.6	10.4	12.6

During the years of the seven-year plan further structural changes will occur in the fuel-power economy of the food industry, mainly in the direction of increasing the share of gas. The transfer of furnaces in the baking and confectionery industries to natural gas economizes on fuel, helps to improve the quality of output and to reduce its prime costs. In the current seven-year period important achievements in the development of automation in several branches of the food industry will be attained and this will lead to a growth in the consumption of electric power.

To fulfill the grandiose construction program adopted by the 21st Congress of the CPSU a rapid development of the building materials industry is necessary. This will give rise to an increase in the expenditures of fuel in the building materials industry; in particular, fuel expenditures in cement production will grow by 2.3 times in the seven-year plan. The expansion of fuel consumption in the building materials industry requires, in every way possible, a rationalization of the fuel-power balance in this branch, as shown below:

The Fuel-Power Balance of the Building Materials Industry
(in conventional fuel; in % of the total)

	1950	1955	1957
Coal	60.7	63.2	57.5
Oil fuel	6.8	6.4	6.5
Shale oil	0.6	0.9	1.3
Peat	7.0	4.9	4.0
Firewood	6.1	3.6	2.3
Natural gas	0.8	2.8	8.5
Electric power	18.0	18.2	19.9

Coal is the principal type of fuel in the building materials industry. But the share of coal, like that of peat and firewood, has a tendency to decline. These types of fuel are being increasingly replaced by natural gas, whose share is rapidly growing. The consumption of electric power is also increasing.

The building materials industry operates a great deal with furnaces: furnaces in the cement and glass industries, furnaces for glazing lime, tile, and decorative materials. Work is being done to transfer furnaces in the building materials industry to natural gas. This will substantially increase their productivity and improve the quality of output.

The use of oil fuel is also being extended in the building materials industry, particularly in those regions where the use of gas is difficult. However, insofar as the prime cost of natural gas is lower than that of mazut, in the whole fuel-power balance of the building materials industry the share of gas will grow more rapidly than the share of oil fuel.

In 1959-1965 there will be a fundamental change in the structure of fuel expenditures in the cement industry. The share of coal will decline from 59.3% in 1958 to 28.3% in 1965, the share of oil fuel will grow from 3.9% to 5.4% in this period, and the share of gas will grow from 36.8% to 66.3%. The principal type of fuel in this branch will become natural gas.

The successful fulfillment of the seven-year plan will lead to a fundamental improvement in the supply of fuel to the communal economy. Fuel expenditures for communal-everyday needs will grow by almost 1.5 times. The number of cities with gas will triple. The structure of fuel expenditures for communal-everyday needs will become more rational through a growth in the use of gas and electric power, and the development of central heating supply.

The principal type of fuel expended on communal-everyday needs is coal, which will gradually be replaced by natural gas, electric power and central heating supply. During the seven-year plan the share of these sources in the fuel-power balance of the communal economy will increase from 18.6% to 31% while the share of coal and fuel procured by the population will decline. All of this will lead to a further economizing of social labor in the communal economy. Thus, central heating supply from thermal power stations will ensure a substantial saving of fuel. At regional heating

electric power stations 172.4 kilograms of conventional fuel are now spent for one mega-calory of heat, that is, one-half as much as in domestic boilers. Heat input from a heating plant will also economize on labor power since much fewer personnel are required to service a thermal power station per unit of capacity them to service small boilers.

The Structure of Fuel and Power Expenditures for Communal-Everyday Needs (in conventional fuel; in % of the total)

	1958	1965
Coal	48.9	41.2
Electric power	10.5	13.0
Thermal power	5.3	9.4
Gas	2.8	8.6
Oil fuel	1.0	1.4
Kerosene	1.3	2.1
Peat	2.9	2.7
Firewood and other types of fuel procured by the population	27.3	21.6

Despite a substantial improvement in the structure of the fuel-power balance of the communal-everyday economy in the current seven-year period, gasification will not be fully completed. In the future a more extensive utilization of gas for communal-everyday needs is necessary.

The extensive introduction of electric power into communal-everyday affairs will raise the culture of everyday life and the well-being of the Soviet people. The use of electrical appliances will lighten household labor. During the years of the seven-year plan the consumption of electric power for household purposes will grow substantially. The consumption of electric power per urban resident will increase from 290 kilowatt hours in 1958 to 557 kilowatt hours in 1965, that is, by 1.9 times. However, electric power in household affairs is now used and will continue to be used during the seven-year plan chiefly for illumination, television sets, radios, electric saws, electric driers, washing machines and so forth. In the meantime, with the progress of electrical technique there will be an increased effectiveness in the use of electric power for such purposes as heating, food preparation, etc. In the current seven-year plan this tendency in the electrification of everyday living can be carried out first of all at new construction sites in Western and Eastern Siberia where prime costs of electric power are not high. The electrification of heating and other such processes is feasible also in the small cities of the European parts of the USSR located far from gas mains. In the more distant future, with an increase in the production of electric power in the country, the electrification of high-temperature everyday living processes will be further developed. It should be noted that in the USSR only 11.9% of all electric power is expended on communal-everyday needs while in the USA the figure is 25%.

A rationalization of the country's fuel balance and an improvement in the structure of fuel and electric power consumption in all branches of production is one of the most important tasks of the seven-year plan. Its successful solution is a major part of constructing the material-technical base for communism in our country and of helping to win time in the peaceful economic competition with the capitalist system.

E. Khalfina:

The State Enterprise Under the New Conditions of Industrial Management*

As a result of the reorganization of management in industry and construction, leadership has been brought closer to enterprises and construction projects and has become more concrete and operational; closer ties have been established between management organs in industry and construction and the direct executors of state plans. "During the comparatively short period of work of the economic councils," Comrade N. S. Khrushchev pointed out in his report to the 21st Congress of the CPSU, "substantial advantages of the new form of industrial management have been revealed, the leadership of production has become more concrete. The rates of growth of industrial production have increased, the utilization of internal production reserves and of the natural wealth of the country has improved, the activity and initiative of workers and engineering-technical personnel have risen, and socialist emulation has become even broader in scope. Favorable conditions have been created for the further development of specialization and cooperation. During this time the number of enterprises not fulfilling the plan has declined by more than half as many again." Conditions have been created for rationalizing economic ties both within the economic regions as well as between enterprises of different economic regions, for eliminating superfluous, irrational and cross-hauls, for liquidating economically unsuitable and harmful fractionalization of supplies, when the enterprise receives small amounts of the same raw material from different suppliers occasionally located thousands of kilometers from the user.

The great successes attained by industry after the reorganization of management are not the limit in realizing the possibilities which are embedded in the improvement of organization in the management of socialist production. There are a number of serious questions whose solution will make it possible to raise the effectiveness of economic management. One of these is the question of the position of the state enterprise in the system of organs of industrial management, its mutual relations with higher-standing organs of economic leadership (chiefly with economic councils and their branch managements), the organization of economic turnover between enterprises, the degree of operational independence of the enterprise in solving the tasks assigned to it, the material responsibility of the enterprise and the material stimulation for its economic activity.

Law and economics are interwoven in these problems. Investigating the means of raising the level of economic activity of the socialist enterprise is impossible without examining questions of the legal regulation of its work. On the other hand, measures for the further improvement of the legal forms of management in industry and construction must be economically justified. Therefore, a study of the economics of the enterprise and an investigation of the means for its further strengthening require the joint forces of economists and jurists.

Going back to the decree of the CC of the CP(b) of December 5, 1929, "On the Reorganization of Industrial Management," it was emphasized that the enterprise is the principal link in industrial management. Therefore, the technical servicing of the enterprise, the correct organization of supply, the most perfect organization of labor within the enterprise, complete adherence to one-man leadership in production, the creation of the most favorable conditions for the maximum activity of the worker's collective and the technical personnel of the enterprise, the selection of a qualified administration, and the necessary degree of independence for the enterprise are the foundations for the further improvement of the system of management of socialist industry. In this decree, which played an important role in the organization of the management of socialist industry during the period of the first five-year plans, the enterprise is designated as the basic cost accounting link in production. It points out: "With the strictest observation of production-financial planned discipline within the assigned limits, the enterprise must be independent."

This regulation still remains in effect. The state enterprise represents a complete cost accounting organization. It is allotted basic and circulating resources, for whose maintenance and effective utilization it bears responsibility. It participates in economic turnover, acquires raw materials and other materials, and markets its output or production services. It is in the indices of the enterprise's work that the relationships between the costs incurred and the values created and the economic results of production activity are revealed. The so-called internal cost accounting — the cost accounting of shops, sections, brigades — is indissolubly linked with the cost accounting of the enterprise, but at the same time it is essentially distinct from it. In intra-plant cost accounting there is an accounting of the relationships between expenditures and the results of work which is used to reduce production costs in individual types of work, to carry out a regime of economy in each section, to develop socialist emulation, to uncover and disseminate advanced experience. But here there is not and cannot be the requirement of covering expenditures, since individual shops, sections, and brigades are not producers of a finished product.

The legal position of a state enterprise is now determined by a multiplicity of acts, a large part of which have become obsolete. Among them are the Regulation on State Industrial Trusts ratified on June 29, 1927, the decree of the SNK USSR of March 20, 1931, "On Changes in the System of Granting Credit, Strengthening Credit Operations and Ensuring Cost Accounting in All Economic Organs," the decree of the Council of Labor and Defense of the USSR of July 23, 1931, "On the Circulating Resources of State Combines, Trusts and Other Economic Organizations," the decree of the Council of Ministers of the USSR of August 9, 1955, "On Enlarging the Rights of Directors of Enterprises," and a number of others.

It is evident that with such a multiplicity of normative acts issued at different stages of socialist construction and determining the legal position and regulating the activity of the state enterprise, certain imperfections and contradictions are inevitable in the separate sources determining the rights and obligations of the state enterprise. The extreme

* Designed to pose the question.

detailing of these rights and obligations is also a defect of the legal regulation of the activity of state enterprises. Thus, in the decree, "On Enlarging the Rights of Directors of Enterprises," the rights of directors are defined by means of a detailed enumeration of competences which by no means include the whole group of rights which are required for the normal activity of the enterprise as an independent cost accounting organization. Since the decree cites only certain competences, in actual practice it is concluded that everything not included in this listing is not within the competence of the enterprise and must be decided by a higher-standing organization. Thus, the competence of the enterprise is artificially narrowed.

In existing legal norms there are cases in which the same rights are included within the competence of the enterprise and within the rights of higher-standing management organs. Thus, article 50 of the Regulation on the Economic Council of the Economic Administrative Region gives economic councils the right, without damage to the fulfillment of state plan assignments, to accept orders from enterprises and organizations not subordinate to the economic council for the manufacture of goods, not provided for in the state plan, from materials provided by the customer and by utilizing local raw materials and fuel and production scrap material. At the same time, article 3 of the decree, "On Enlarging the Rights of Directors of Enterprises," gives the same right to directors of enterprises. In a number of other articles of the Regulation on the Economic Council (articles 20, 27, 34, 36, 54 and others) the economic council is given rights which in other laws and decrees are treated as the rights of enterprises. As a result, the competence of the enterprise is taken over by the competence of the higher-standing organ. The enterprise loses its individuality and is deprived of the operational independence which is necessary for an improved fulfillment of its functions; the higher-standing organ substitutes for the enterprise.

In defining the competence of the enterprise it appears feasible to differentiate it sharply from the competence of the higher-standing organ. With such a differentiation the higher-standing organ will be able to guide the activity of the enterprises subordinate to it in a deeper and more qualified manner. One of the principal functions of the higher-standing management organs is constant control over the activity of the enterprise for the proper realization of its rights and fulfillment of its obligations. But the higher-standing organ, in guiding the activity of the enterprise and in exercising everyday control over it, must not substitute for the enterprise, must not take upon itself the performance of those functions which are included within the competence of the enterprise. By differentiating between the competence of the enterprise and higher-standing organs the irresponsibility and loss of individuality which arise from the failure to clearly distinguish the obligations and responsibilities of different organs will be liquidated. At the same time conditions will be created in which the organs managing industry will be able to concentrate their forces on the principal, decisive problems of planning and organizing production, material-technical supply and so forth.

In connection with the need for an exact definition of the competence of the enterprise and the corresponding rights granted it for fulfilling the tasks assigned to it, it would be expedient to establish, through law, a listing of the principal indices of its economic operations ratified by a higher-standing organization. The principle of democratic centralism in industrial management requires granting the enterprise definite operational independence and initiative in planning and in fulfilling the plan. Legally establishing the range of planned indices, subject to ratification by a higher-standing organ, and granting the enterprise the right to work out detailed technical-production and financial plans in accord with these general indices, will promote the development of the enterprise's initiative and will give it the possibility of greater flexibility in maneuvering its resources to increase the output of goods and to raise their quality and variety, to improve the qualitative indices of work.

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One of the conditions for raising the economic level of the enterprise's work is the establishment of economic stimuli ensuring the interest of the leadership and the collective body of the enterprise in the results of its work, in mobilizing internal resources, in an improved utilization of basic and circulating resources. The legislation prevailing in this sphere does not always conform to the growing requirements of improving the economics of production.

It would be proper to proceed along the lines of further strengthening the financial base of the enterprise. Higher organs may now change the enterprise's plan in the course of the year and on this basis withdraw from it surpluses of circulating resources, although such a change in the plan is of a short-term nature and actually, if we consider not the particular accidental date but the whole production cycle, the enterprise does not have surpluses of circulating capital at its disposal.

Giving economic councils and other leading economic organs the right to change the plans of enterprises subordinate to them during the year and in the course of this to redistribute the circulating resources of enterprises in actual practice sometimes leads to a situation in which the enterprise's plan is changed only to withdraw resources from it. As a result of such an unplanned redistribution of circulating resources, efficiently operating enterprises suffer, since it is from them that resources are withdrawn to cover shortages of circulating resources at poorly operating enterprises. There is no need to demonstrate that this kind of redistribution of circulating resources is a violation of the principles of cost accounting. The redistribution of circulating resources during the economic year is used to help enterprises who are in a poor condition to settle accounts with suppliers, to meet overdue bank indebtedness and so forth, and in this way to present an over-all "good" picture for all enterprises subordinate to the particular higher organ. The grounds for withdrawing so-called "surpluses" of circulating resources may often only be the presence of resources in the account. An analysis of how well the enterprise is actually provided with circulating resources is frequently conducted in a highly superficial manner.

Such a redistribution of circulating resources violates the normal operations of the enterprise and interferes with the rational planning of production. Under these conditions the enterprise is not interested in preserving circulating resources, in accelerating their turnover and in their better utilization. The enterprise, not without reason, may fear that the existence of balances in its account will lead to the unplanned withdrawal of resources.

From what has been said it does not at all follow that the redistribution of circulation resources during the year based on justified changes in the enterprise's plan for a protracted period is generally impermissible. On the contrary, it is necessary if changes in the plan are connected with changes in the volume of production, declines in the required supplies of raw materials, unfinished production, finished goods, etc. However, the redistribution of circulating resources must be economically justified and may not be used to cover the defects in the work of one enterprise at the expense of another.

To put in proper order the redistribution of enterprises' own circulating resources, the right to withdraw resources must be given, in our view, only to the leader of the organ under whose jurisdiction the enterprise finds itself.

Bringing order into the redistribution of circulating resources will undoubtedly promote a strengthening of the finances of enterprises, will heighten their interest in the better utilization of circulating resources and at the same time will increase the responsibility of enterprises for preserving the circulating resources attached to them and for their correct utilization.

One of the most serious problems under current conditions is to intensify the interest of the enterprise in the qualitative results of its work — reducing production costs, raising profitability, mobilizing internal reserves. Now, when each percentage reduction in production costs involves colossal figures, the struggle for reductions in production costs and a regime of economy assumes particularly great significance. Comrade N. S. Khrushchev in his report to the 21st Congress of the CPSU called for organizing a genuine nation-wide campaign against all manifestations of unbusinesslike behavior, wastefulness, a negligent attitude toward the people's welfare. At the same time he emphasized that it is necessary to increase the responsibility of leaders for improving all qualitative indices of the operations of enterprises and construction projects, particularly for reducing production costs and increasing the quality of output.

In order to fulfill these tasks it is important to strengthen the interest of enterprises in the results of their activity. One of the measures designed to increase this interest could be the establishment of a procedure under which a larger part, than is now possible, of the above-plan profits stemming from good work would be included in the enterprise fund (with the exact amount being differentiated by branches of the national economy). The struggle for reducing production costs, for an economical and rational conduct of the enterprise, would then to a larger degree become of concern to every worker and employee, the interest of all personnel in carrying out the most important tasks posed by the 21st Congress of the Communist Party would be raised.

Increasing the responsibility of the enterprise for uneconomical and unbusinesslike conduct of production, for not fulfilling obligations to customers, is also of great importance. For example, it seems expedient to grant economic councils and other leading economic organs the right to fully or partially charge the enterprise fund for penalties, fines, compensations for losses, etc. due from the enterprise for systematically failing, through its own fault, to meet its obligations to deliver products or to fulfill jobs.

Increasing the role of the enterprise fund and covering losses stemming from violations of the plan for product deliveries out of this fund will help to mobilize the whole collective body of the enterprise in the struggle for exact conformity to the enterprise's obligations. Many aspects of the enterprise's activity which are not now subject to the influence of social control (as, for example, the marketing of output) would attract the attention of public opinion, which would help to reveal defects in the enterprise's work and to correct them. In combination with currently prevailing forms of workers' participation in the management of production, these forms of material personal interest would promote the further development of the initiative of the masses, eliminating defects in work.

The mobilization of internal resources is of great significance in strengthening the economic position of the enterprise. In our opinion, it would be suitable to include in the enterprise fund a certain percentage of the economies derived from utilizing internal resources, local sources of raw materials and other materials as well as from production scrap materials, and from accelerating the turnover of resources (only, of course, where all other conditions for creating the fund prevail in the production activity of the enterprise).

Strengthening the stimulating role of the enterprise fund will make it possible, to a greater extent, to interest the whole collective body of the enterprise in fulfilling the tasks imposed on it. This will promote the maximum development of initiative among the direct executors of state plans in meeting the assignments in all respects.

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Questions of material-technical supply take on great significance under the new conditions of industrial management. In Comrade N. S. Khrushchev's report on the reorganization of management in industry and construction, the need to develop direct contractual ties between consuming enterprises and supplying enterprises as the most feasible and economically advantageous form of material supply and marketing of output is pointed out: "The development of direct contractual relations between enterprises will make it possible to eliminate serious defects in the organization of supply through departmental supply and marketing outlets and the need to place numerous orders for materials and to spend lots of time in coordinating them in many instances will disappear."

In article 28 of the Regulation on the Economic Council it refers to the need to develop and strengthen direct ties between supplying and consuming enterprises. However, this form of direct contractual ties has not yet become sufficiently widespread. The dominant form of marketing output and of supply is a contract concluded by marketing and supply bases on the conditions of transit delivery. Between the producer and the consumer there are one, and sometimes two, intermediate links (the marketing base of the supplier and the supply base of the purchaser). These intermediate links are frequently unnecessary, they negatively affect economic turnover separating suppliers fron consumers. With this form of economic ties, questions of supply and marketing are artificially excluded from the sphere of the enterprise's operations. At the same time, a direct tie between the producer of goods and his consumers is in most cases the most rational form of economic tie. It promotes the most suitable utilization of productive resources. The supplier who is in direct contact with the consumer knows his requirements better, can take account of them more quickly, and can plan production more flexibly. With such direct ties the consumer exercises a more effective influence on production, achieving the output and supply of the goods he needs.

For the economy as a whole the extensive introduction of direct contractual ties between enterprises is of great economic significance. It is known that with the same raw materials, with the same equipment, with the same expenditures of labor, output can be produced which cannot be marketed, which does not satisfy consumers, which does not embody the newest achievements of technique, and output can be produced which is in great demand, which promotes introduction of new, advanced methods of production. The correct planning of a rational assortment of production depends to a large extent on how well the supplier knows the needs of the consumer, on the extent to which the consumer may influence the supplier, and this assumes the establishment of direct ties between the supplier and the consumer. There is no need to demonstrate that the presence of intermediate links does not provide the possibilities for the kind of flexible and timely consideration of the consumer's requirements that could prevail with direct ties between

supplier and consumer.

The existence of superfluous intermediate links in economic turnover leads to a violation of the normal work of the enterprise and negatively affects the condition of its finances. Thus, because of the absence of direct contractual ties some machine-tool building plants supplying products through Tiazhmashsbyt are experiencing serious difficulties. Payment for the supplied machine tools can be made only if the consumer presents a certificate authorizing resources for financing capital construction. If the suppliers were to be directly linked with the consumers then, in planning the output of products and the periods of deliveries, they would consider the consumer's possibilities of paying for the output. In concluding contracts through Tiazhmashsbyt, plans for the output of goods are not tied in with the possibilities of sale, and in the first few months of the year when the consumer does not yet have certificates testifying to the availability of resources for financing investment operations surpluses of finished output accumulate at suppliers. This could be avoided with direct ties between supplying plants and consuming plants.

What the absence of direct ties between producers and consumers in branches producing consumer goods leads to may be seen from the following examples.

A Kharkov factory supplied thread and furniture to Kiev sewing factories. When any of the sewing factories had to stop for repairs or to prepare equipment for a new type of sewing, for "reconversion," the sewing factory communicated with the supplier, the Kharkov factory, with a request to shift deliveries of materials to the following month. The supplier met these requests and delivered his products to other consumers who could use them immediately. But there were no direct contractual relations between the Kharkov factory and the consumers of its products, and the supply-marketing base which was the factory's contractor brought action against it for payment of fines and forfeitures for failure to make deliveries, although in these particular cases the change in the periods of delivery was made at the request of the consumer and was economically expedient.

At the direction of the branch management of the economic council some enterprises in Moscow oblast, in accord with the requests of trade organizations, replaced some cloth articles which they were producing for others for which there was a great demand. The enterprises operationally reorganized their work with the object of improving the utilizations of resources and for better meeting the demands of the consumer. It would appear that they deserved encouragement. But trade organizations do not have contractual relations with producing enterprises. The marketing bases, contractors of textile factories, brought action against the producing factories for the payment of fines and forfeitures for violating the contractual assortment.

A silk textile factory, at the request of the consumer — a sewing factory — released flannel for which there was a great demand instead of satin. The marketing base, just as in the case cited above, took action for the payment of a fine for violation of the contractual assortment.

The Tushinsk stocking factory, according to a contract with a marketing organization, was supposed to supply Moscow trade organizations with certain types of stockings. But some of the types of stockings cited in the contract ceased to be in demand by the population. At the request of the trade organization the factory ceased sending such stockings and correspondingly increased the production of goods which were in demand. The marketing base which was the contractor of the stocking factory brought proceedings against it for not observing the contractual assortment. Such cases are not exceptional.

All of these cases show the harmful consequences that follow from the separation of the producer from the consumer. Because of the presence of intermediate links in economic turnover, the most important principles of economic accounting are distorted. Material sanctions which are designed to stimulate the producer to produce the more necessary products for which there is a demand, are actually often used by marketing organs to force producers to retain the plan for outmoded output which is not in demand and does not satisfy consumers' requirements.

The involvement of superfluous intermediate links in the form of offices and bases of supply-marketing organizations in contractual relations is often in conflict with the current organization of industrial management. With such a structure of contractual ties there are cases in which two enterprises, located in the same city, subordinate to the same economic council and actually connected through supply relationships, have contractual relationships not with each other but with an office of a supply-marketing organization which is in another economic region. Thus, an Odessa timber packing plant supplies wood to another Odessa plant located next to it, but these plants do not have contractual relations with one another; the contract is concluded with an office of Glavsnabsbyt. A Lvov plant supplies equipment to another plant in Lvov; they are both in the jurisdiction of the same economic council. But a contract for the supply of equipment is concluded not between these plants but between each of them and a supply-marketing office in Kiev.

From what has been said it follows that in those cities in which direct contractual ties between producers of goods and their consumers are possible, marketing organizations, their offices, bases, etc., should not take part in the contract. A supply contract should connect a producing enterprise directly with consumers. This, of course, does not mean that marketing organizations should be generally excluded from the system of contractual ties. In those cases in which the producing enterprise supplies a multiplicity of small consumers it is not feasible to conclude a large number of contracts (their number might reach into the thousands) with each consumer. Marketing organs should be the contractors of producing enterprises in this case.

The establishment of direct ties between suppliers and consumers assumes that the function of marketing the goods it produces is included in the competence of the enterprise. It appears to us that at the current stage of development of the socialist economy it is necessary to increase the responsibility of the enterprise for marketing its output.

Freeing the enterprise from the function of marketing and transferring this to special organizations stemmed in those days from the concrete historical circumstances in which the system of management in Soviet industry was created. After the reorganization of industrial management in 1929 the danger arose that the enterprise, as the basic link in management, would not be able to handle the functions of marketing. Insofar as the principal tasks of enterprises were to set production going, to organize production, to fulfill production plans, it was expedient to free them from the functions of marketing, assigning these functions to special organizations. This measure was reasonable and necessary. Enterprises could concentrate all of their attention on questions of developing production.

Almost thirty years have passed since that time. Enterprises have accumulated a great deal of production experience. Under current conditions Soviet industry is confronted with new tasks. Under conditions of rapid technical progress in all branches of the economy the industrial

enterprise producing one or another type of product must be in a position to rapidly switch the assortment of finished output in accord with the requirements of rapidly developing technique. With a rise in the technical level of production the demands made on materials, machinery, equipment and other types of industrial output increase. Under these conditions, in order to rationally utilize raw material resources and productive capacity, it is necessary that the producers of goods be closely connected with consumers and be able to quickly take account of the requirements of consumers, operationally and quickly shifting the assortment of produced goods. From this there arises the problem of combining the functions of production and marketing in the competence of the enterprise.

Improving the organization and the legal status of material-technical supply is one of the most complex questions in the further improvement of the management of socialist industry. This complex question requires special, profound examination. Undoubtedly, with respect to some types of goods which are particularly scarce it is necessary under all conditions to retain the control over their distribution which is exercised by supply and marketing organizations. However, such control does not exclude direct ties between suppliers and consumers. The marketing organization can control the distribution of scarce products without directly participating in contractual economic ties. At the same time, marketing and supply bases must participate in economic turnover to the extent that these organizations perform definite economic functions (storing products, sorting, shipping, and so forth). In a number of cases, as noted above, which are connected with specific features of supplying certain types of output (for example, when there is a very large volume of small supplies), the participation of marketing and supply bases in contractual relations is feasible and necessary.

In the overwhelming majority of cases the task of marketing and supply organizations now consists only of "connecting up" a supplier with a consumer, pointing out which enterprise must supply goods to another enterprise. It is evident that direct ties between supplier and consumer is a more rational form of economic relationship, increasing the responsibility of the enterprise for supplying raw materials and other materials and for marketing its output. Increasing the responsibility of the enterprise and its rights in the sphere of supply and marketing, together with measures strengthening the interest of the enterprise in the results of its activity, will promote a more economical and rational utilization of material resources and their more flexible maneuvering.

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P. Maslov:

On the Use of Mathematics in Economic Calculations

The seven-year plan for the development of the economy of the USSR in the years 1959-1965, adopted by the 21st Party Congress, provides for the further improvement of industrial management and for the most rational use of capital investments and material resources, so as to obtain the maximum effect in the shortest possible period, from reconstructed and new enterprises. In planning new enterprises, it is necessary to attain the optimum technical-economic indices of production, while lowering capital investment for each unit of finished production. In connection with this, the role of the science of economics will grow; it must be closely connected with the planning of the national economy and the entire practice of building communism. Economic calculations in planning and operation must be ever more improved and made more precise. It is well known that any technical project demands much mathematical calculation. But technical calculations are indissolubly connected with economic calculations. On the other hand, the planning and normalization of complicated production processes often demand precise and complicated calculations; when these are not made, operative management is made more difficult. This shows that an economist can no longer rely in his work only on his intuition and practical experience. At the present time, the problem of a wider application in economics of accurate mathematical methods of research by the use of the latest computation techniques has become pressing.

New mathematical concepts and new branches of mathematics are formed in the last analysis under the influence of the demands of production. In this way arose concepts such as derivatives, integrals, vectors and tensors. The needs of technology, physics and chemistry called into being the theory of differential and integral equations, the functions of complex variables, the theory of information and others. The development of mathematical statistics was conditioned to a significant degree by the needs of biology. At the present time, the science of economics makes growing demands on mathematics: operational solutions of complicated problems of management and automatization of production give rise to a need for the application of precise mathematical methods. At the same time, electronic techniques permit complicated economic calculations which were impossible with previous calculation techniques. New ways have been discovered in the field of applying mathematics to economic research.

The application of mathematics to economics consists, in particular, in the mathematical construction of economic models and the subsequent study of the actual processes, on the basis of which the hypothetical models are subjected to statistical verification. The economic connections are expressed in any given case, by a mathematical formula, as their expression in words is, in many cases, incomplete. The equation construed in this manner represents a hypothetical, mathematically expressed model, which reflects the mathematical form of the dependence of economic phenomena on the influence of stable and of temporary factors. The hypothetical model, construed on the basis of logical assumptions, must express the type of the phenomenon, i.e., the form which the phenomenon assumes in the absence of all inhibiting circumstances. With the establishment of the empirically determined sequence of facts, the compliance with, or difference of this sequence from the formulated abstract type is determined.

Let us cite an example of the simplest model. Let us assume that a worker receives "a" rubles for each article he produces. It is obvious that his wages can be expressed in the linear equation: $y = ax + b$, where x is the number of articles and b the bonus for exceeding the norm.

In other cases, the model equation takes on a more complicated form. Thus the cost price of one copy of a publication must be expressed by a hyperbolic equation, as here, a part of the cost is permanent, while another part is inversely proportional to the size of the edition. Sometimes the construction of a model demands the application of higher mathematics (for example, the determination of the optimum price for various pieces of merchandise under given conditions). Such models are of particular significance for the solution of questions of the economic effectiveness of capital investments; for example, in estimated calculations in construction or in determining the optimum dimensions for an automatic telephone exchange, where the cost of a conversation depends on the curve of the number of subscribers. Usually, such calculations are made with the help of elementary computations, without mathematical generalizations which, here, could undoubtedly substantially improve these calculations and render them more precise.

Consequently, the use of economic models can help practical work significantly and can standardize and consolidate the arithmetical calculations which are necessary for the solution of various concrete problems. Insofar as a great number of variants, which possibly exist in practice, must be provided for and unified in the construction of generalized models, an enormous amount of computation work is unavoidable here (many equations must be solved by way of selection). The latest electronic techniques will come to our aid, which permit the extensive use of calculations which, before this time, were inaccessible to economists and planners.

Another characteristic of such calculations, which brings them close to statistics, is the study of the tendency which is being established. In some cases, the study of this tendency means, above all, measuring its characteristics and parameters with great precision. Such measurements are the basis for further decisions and conclusions and permit clarification of the question whether the movement corresponds to the provisions of the plan and whether it does not contradict the objectively acting law. Such measurements make it possible not only to foresee events, but even to bring them about by combining in a certain manner the effects of the processes which are taking their course.

Consequently, the construction of a mathematical model can have two aims. In the first place, a mathematical model can serve for the formulation of economic laws. Thus, algebraic equations served Marx for the characterization and explanation of the theoretical scheme of reproduction. Marx was the first to show the enormous advantage of applying mathematical methods to the science of economics. In the

second place, a model set up on the basis of practical assumptions and calculations (usually, though not necessarily, connected with political economy), can be applied in practice. However, all the empirical investigations mentioned above are possible only given a theoretical knowledge of the subject studied. Consequently, the theses of the science of economics precede the construction of economic models, as well as empirical observations.

Under conditions of socialism, the construction of models is connected with the experimental basis of current practical measures in the field of economic planning. Such work has been done for quite a long time in the USSR. Thus, a description of the application of the methods of mathematical statistics in the solution of various production problems in the ferrous metals industry is presented in the brochure by O. Mikhailov: "Mathematical Statistics in the Ferrous Metals Industry" (1956). In the work of A. Kiselev ("Transactions of the Leningrad Engineering-Economics Institute, 1939"), mathematical methods in the analysis of the use of equipment and the establishment of an optimum variety of production are discussed; also, the problem is solved of finding the best relations between various products produced simultaneously, so as to ensure an even rate of utilization of the equipment. There also exist a series of other works on questions of applying mathematical calculations in the field of the organization of production. Recently, specially worked-out devices have been more widely used for these purposes (in particular, methods of the determinant multipliers, suggested by the Leningrad mathematician L. V. Kantorovich, as early as 1939), which go beyond previously used methods of mathematical analysis. Such methods are used, in particular, for calculations in transport work, etc.

The above-mentioned economic-mathematical methods are often unifed in the West under the convenient title of "econometry" (or "econometrics," "metroeconomy"). However, theoretically unsound practices often form the basis of the construction of economic models: this leads to obviously mistaken and practically useless conclusions. Thus, bourgeois economists widely use economic models for "proving" the theses of vulgar political economy. Below will be found a list of themes which contemporary bourgeois econometry is concerned with.

The first problem is the equation of supply and demand. The extent of the demand is connected with a great number of factors (prices, national income, accounting percentages, seasonal prevalence, and others). By combining these indices, bourgeois econometry strives to give external expression to the phase of the cycle. But the researchers themselves admit that a series of factors are lacking in their equations. Meanwhile, those very factors can, under certain conditions, exert a decisive influence on the general equation, with the result that the calculations are incorrect.

Another problem which bourgeois econometry investigates is the problem of the economic effect of investments. In the absence of full and complete accounting in capitalist economics, direct calculations are impossible; therefore, economists must content themselves with indirect calculations of the expected effect. The specific conditions of capitalist economics ("effect" is the greatest possible profit) make such econometric models unsuitable for use in a planned economy; however, some particular methods deserve attention and study.

"Consumer Economics" hold a great place in bourgeois econometry. Here, bourgeois econometry starts out from the premises of the school of limited usefulness, which denies the concept of cost; results obtained on this basis are theoretically unsound.

Bourgeois econometry also is concerned with models of the internal market and also with models of a group of combined markets and the functioning of separate markets in this combination. The simplest case of such functioning is called "the echo principle," according to which the dynamic of the production of commodities is determined depending on their durability. For example, if the period of usefulness of a commodity is equal to ten years, the volume of production of this product ten years ago determines the demand at the present time. A more complicated mechanism for the determination of the fluctuations of production is called the "cobweb theorem," which explains how fluctuations in prices are reflected in demand, including contiguous products in this effect. The theorem is construed on the analogy that a touch on any part of a stretched cobweb immediately gives rise to oscillation of the whole surface. Complicated market relations are expressed by complicated equations, which are mainly speculative. The practical value of such calculations, even for the monopolies themselves, is doubtful.

At the present time, a not inconsiderable place in bourgeois econometry is taken up by the curves of production costs ("microeconometric" models), which are closely linked with linear programming.

From the above list it is clear that, for the practical needs of a planned socialist society, only some particular generalizations and methods of calculation worked out by bourgeois econometry can be used; these deserve attentive study. In the first place, we must mention mathematical (linear) programming and organizational research connected with it.

As to the application of mathematics in bourgeois political economy, in the majority of cases it is not related to econometry, as here the question is not the construction of models and the subsequent empirical analysis, but abstract constructions not connected with the study of material processes. For this reason we must confuse neither the "theory of strategic games" nor the "theory of monopoly" (Chamberlin) — the latest "achievement" of bourgeois science — with practical econometry, even though such confusion is characteristic for the majority of bourgeois economists. On the whole, the contemporary so-called mathematical school of political economy, which, as is well known, is most widely accepted in the USA, is an apologetic vulgar political economy, and its deliberate confusion with applied problems is one of the tricks of bourgeois science.

In our literature, up to the present time, little attention has been paid to econometry. There is even no corresponding article in the Great Soviet Encyclopaedia. However, disregarding the flimsy theoretical basis of bourgeois econometry, based on vulgar political economy, there is much that is useful in practice in its calculation methods; the study of econometry can become a good school for those who are concerned with problems of the organization of production, of the economy of sectors and of economic planning.

Mathematical models are widely used by us in the form of the simplest algebraic formulae — for example, in calculating amortization norms — as well as in the form of more complicated equations, used in technical-economic calculations. However, economic models are still not sufficiently used and, in many cases, they do not go beyond elementary mathematics.

This is explained to a certain degree by the fact that, among economists, we often encounter a skeptical attitude towards mathematics. B. Gnedenko remarks correctly, that anti-mathematical sentiments are partially aroused by the fact that among non-mathematicians there can be remarked a peculiar kind of faith in the mystical force of mathematics, a science which they are not familiar with. (1) They regard mathematics not as an aid, but as magic, which enables one

to pluck conclusions out of thin air. Such an attitude towards mathematics does not correspond to its real possibilities.

The strength of deductive mathematical method consists in that, in the absence of mistakes in logic, it leads to precisely determined conclusions. But the conclusions in mathematics, to be correct, must be based on correct starting premises. These premises can no longer be obtained by deduction; they must be obtained by the study of reality and, in research, economists must be guided by the science of economics. Thence the purely auxiliary role of mathematical constructions. But this role of mathematics is great, especially today, on the threshold of the age of electronics.

Paul Lafargue wrote in his reminiscences on Marx: "In higher mathematics he (Marx — P. M.) found a dialectical movement in its most logical and, at the same time, simplest form. He also held that science reaches perfection only when it succeeds in using mathematics." (2) Soviet economic science and Soviet practice must possess all the foremost progressive methods. Unfortunately we must admit that mathematical knowledge is insufficiently popularized among our economists. This can be explained mainly by the fact that it is difficult for mathematicians to find the necessary methodological devices for teaching economists, especially in higher educational establishments. Also, cases occur in our country where sometimes mathematicians are employed for the construction of complicated economic calculation models who are inexperienced in economics. Mathematically designed models are of limited significance, but with their aid it is possible to obtain a greater number of results than with premises which are not mathematically designed. Moreover, mathematics in many cases can give an objective evaluation of the premises themselves and can define the limits of their applicability. Usually, a model should express the system of connections between phenomena. This is quite correct, as, in the majority of calculations, it is important to establish the degree of influence of any factor on the expected result of economic activity. Under capitalist conditions, the best result is considered to be the one which brings the greatest profit. Under socialism, the best result is the one giving the maximum effect for the economy with the smallest costs.

In any case, the search for the optimum effect is connected with measurements of the degree of influence of various factors on practical results. This influence is often empirically discovered on the basis of practical experience, where no precise measurements of the relative degree of influence or the extent of the connection between the factor and the result are made and the investigator contents himself with general estimates. However, as a result, the final plan estimate arrived at is inaccurate.

The practice of planning demands, in many cases, the computation of simultaneous equations. Sometimes we limit ourselves to simple groupings, which make it possible only to ascertain the existence of the influence of a given (single) factor. Based on these groupings, we can judge merely whether there exists a connection and whether it is direct or inverse. However, the degree of this dependence remains unknown. Moreover, groupings do not permit the use of even the simplest interpolation methods, which can be applied with the aid of connecting equations.

A pressing need for precise measuring methods is felt particularly in those branches of economics where numerical methods are needed for normative planning estimates. Here, elementary methods prove clearly insufficient as the discovery of facts does not disclose anything (they are known any way), as long as the degree of their influence is not determined. Here the methodology of measuring by simultaneous equations comes to our aid; for this reason alone, the problem of working these out is of extraordinary significance for our planning.

In computing theoretical levels or connecting equations, an investigator sometimes assumes the presence of functional connections even where they do not exist in practice, but where such an assemption can help to explain the tendency which is being formed. Apart from this, many interpolations are possible for practical purposes.

Equations which are construed for a mass of statistical facts represent the connection between phenomena, which is revealed in general and on the average. The simplest connection is a linear equation: $y = ax + b$, where the coefficient of correlation is the coefficient of x. For example, for the textile factories of the Moscow region, according to the accounts of 1940, the equation of the connection between profit (x) and the deduction from profit (y), resulted in the following: $y = 0.63x + 0.66$. The coefficient of correlation in the given case showed that, on the average, approximately 63% of the profit was deducted. However, in practice, as is well known, the percentage of deduction fluctuates in an extremely wide range for various reasons, and the figure obtained gives an idea only of the average level ("the tendency being established"). By substituting the sum total of profits for x, it is possible to establish the average amount of deductions in various amounts of profit. It is understood that such an interpolation can be applied only in the most general way and cannot have a normative significance. But the practical usefulness of such a calculation for financial planning on a regional scale is obvious.

In some cases in statistical analysis, measurements of simultaneous equations are used with the purpose of tracing the joint influence of two or more factors.

Let us take a practical example of the computation of simultaneous equations. It is well known that the size of the staff of an enterprise is planned by taking into account conditions of supply and of sale, of location, distance from the main roads, of all kinds of local characteristics, of the year the enterprise was started, its size, the degree of dispersal of its parts, its planned production, etc. However, other conditions being equal, the decisive factor for the establishment of the size of the office personnel in enterprises usually is the number of workers. The volume of production, as well as the number of workers employed, depends on the capacity of the equipment. Obviously, the organization of production and management, the staff in particular, depends on the size of the basic means of production also. (3) In other words, the size of the staff is determined by the interdependence of two basic factors: the number of workers and the size of the basic means of production.

The determining role of the basic means of production on the one hand, and the number of workers on the other, is the assumption which forms the basis for the construction of a model. Some experiments show that, as a result of measuring the joint action of both factors, the coefficient of correlation (multiple coefficient of correlation) is found to be equal to 0.92. Here it is possible to state with full confidence, that the number of office personnel (including the engineers and technical personnel) of the enterprise is determined on the whole by the size of the basic means of production of the enterprise and the number of workers. Consequently, the effect of "other conditions" on the study of the work of a great number of enterprises disappears almost completely.

Thus, if we find the theoretical relationships between the number of office personnel, the basic means of production and the number of workers for each concrete enterprise of a given sector, the deviations from this calculated quantity

must show the influence of other particular and concrete conditions, which were disregarded in the calculation of the effect of the basic factor.

The number of office personnel anticipated by the prevailing practice constitutes the average level, which expresses the type which is formed at the moment of observation: if we arrange the enterprises in order of their size, we find this type for an enterprise of any size. The connection obtained is expressed by an equation consisting of three parts:

$$Yx^1 x^2 = ax^1 + bx^2 + C$$

where Y stands for the unknown quantity of office personnel, x^1 for the number of workers, x^2 for the amount of basic means of production, C for the constant quantity (a correction which is obtained from calculation in absolute quantities). The presence of the constant quantity C in a given equation indicates that, with the increase in the basic means of production and the number of workers, the growth of the number of office personnel is relatively slowed down. This is indicated by the following table, construed on the basis of data from 135 textile factories of the Moscow region for the year 1940:

Groups of enterprises according to the cost of basic means of production (in thousands of rubles)	Relation of the salary (office personnel) and wage (workers') funds
Under 1,000	8.7
1,001 — 5,000	6.7
5,001 — 10,000	6.2
10,001 — 15,000	5.6
15,001 — 20,000	5.6
20,001 — and more	5.3

Substituting in the equation the number of workers in a given enterprise for x^1, the value of the basic means of production for x^2, we get the number of office personnel anticipated for the enterprise in theory, under ordinary conditions. Comparing the number thus obtained with the figure which had been planned, we discover to what degree the planned estimates diverge from the expected results for an enterprise of a given size. How well-founded these divergencies are can be judged only by further concrete observation. Thus, the level obtained does not constitute a norm but a reference point, which makes planning easier in estimating the staff for a corresponding group of enterprises.

Of no little significance is the conduct of analogous calculations also in other fields of the study of economic phenomena, for example in consumer demand. Contemporary computation techniques permit us to make complicated practical calculations in many cases even on the basis of simple mathematical problems. For example, interesting in this connection is the experiment of using the machine "Leo" of the English firm "Lyons." This machine is fed information on which products were more or least in demand during the past week. Based on these data, the machine computes the probable demand for the coming week. Production is planned accordingly. Sometimes also it is necessary, for calculating consumer demand, to construct first a complicated model, based on functional analogies. Let us suppose that each consumer needs a single unit of a product (for example, a new book). If A equals the number of consumers in need of the product and x stands for the number of people who buy the product, the mathematical expectation of the number of purchases in a unit of time is r(A-x). Here r expresses numerically the probability that a consumer will buy the proposed product. This quantity remains constant during the whole period of sale. The actual number of purchases in a unit of time can be expressed by the speed of the process of sale at any given moment of time $\frac{dx}{gt}$, where dx equals the infinitely small increase in the number of purchases and gt the increase in time during the period of sale. In a mass process, the actual quantity of purchases must not differ substantially from the mathematical expectation. Thence $\frac{dx}{gt} = r(A-x)$. After integration a formula is reached which can form the basis of the mathematical model for the satisfaction of demand for a given product by trading under the accepted preconditions: (a) the irreplaceability of the product, (b) permanence of the price, (c) no need for a second purchase (as a single consumer needs only one unit of the product).

The examples cited above give us an idea of the simplest mathematical models which are significant for some practical calculations. But in many cases practice demands more complicated calculations. At the present time, a whole system of standard methods is being worked out for calculating the optimum variants in economic operations. This applies to a combination of factors of production, as well as to questions of sale, of warehouse economy, of transport, etc. An applied branch of knowledge has sprung up: linear programming. Under this term is understood the solution of a series of operative-planning problems, connected with achieving the desired result with the least outlays, by the most rational selection of expense factors and by the most rational use of resources.

The name "linear programming" itself (i.e., operating with linear equations of the first degree) was suggested by the American economist, J. Dantzig, in 1949 (4), but its mathematical basis was worked out by Soviet science even before 1940. A number of Soviet economists are working out problems of linear programming applicable to the organization of work in our enterprises. There is a wide literature on the subject.

Linear programming can serve in certain cases for carrying out important practical decisions. Let us suppose that it is necessary to draw up a plan of transportation, according to which the total sum of kilometer-tons would be kept to a minimum (this naturally does not mean that expenses would be kept to a minimum, as tariffs are not proportional to distances). For the solution of such a problem we must compile various data on the existence of the goods at the points of departure, on the number of loads which it is necessary to convey to the points of destination and on the means of communication. These data must be processed according to a definite mathematical scheme; the aid of the newest calculation techniques is indispensable here, as it is impossible to accomplish multiple calculations by hand.

Also, many other practical and important problems which come up in the process of the regulation and planning of work and wages cannot be solved satisfactorily without using mathematical methods. We will limit ourselves merely to a few examples.

According to the tasks set by the seven-year plan, the divergencies between the wages of low-paid, middle and well-paid workers and office personnel are to be reduced. It is possible to evaluate the degree of reductions in these divergencies only by using mathematical methods. All evaluation "by approximation" is inadmissible in this important affair.

The productivity of labor in enterprises, sectors and in

the whole economy cannot be investigated without the aid of mathematics. The use of electronic computing techniques opens up the possibility of an approximate calculation of the cost of reproduction of a social product (even if only in examples of simplified models). The solution of this problem means at the same time the solution of the problem of calculating changes in the social productivity of labor. But the programmed task for the computing machines must be given in the form of mathematical equations.

In the field of consumption, we can establish the optimum variants of the structure of consumption (working out the corresponding recommendations), taking into account the level of income (5), the price level, the age and sex composition of the family, its professional composition, the number of working members in the family, the place where they live, etc. But the solution of these questions is possible only by linear programming.

An effective method of "surprise short observations" of the place of work which, apparently, will replace the method of ordinary time-study, is also based on theoretically probable premises. For the evaluation of the results obtained, a knowledge of mathematics is necessary.

The working out of a series of complicated mathematical calculations is a necessary condition for synthesis work in the field of labor problems and the estimating of the balance of labor (discounted and accumulated).

Recently a translation of a book by B. Kreko was published: "Lectures on Linear Programming," in which the author cites the following examples of the application of linear programming:

"(1) The solution of problems of the working load for machines, i.e., determining the minimum work time of machines which is necessary for fulfilling the prescribed plan. This kind of problem is often met with in metallurgy, in the textile industry, in the building materials, industry, etc.

"(2) The solution of problems of transport. By this is meant the drawing up of such plans of transportation which would entail the minimum transportation costs. This means finding the shortest route in the transportation of cargoes (brick, fuel) or the maximum turnover in empty cars, etc.

"(3) Drawing up production plans. This is the most important area for the application of linear programming. Here the optimum is calculated while taking into account a whole series of factors, the most important one being the effort to ensure the maximum clear profit with the minimum outlays." (6)

Also interesting is the so-called simplex method. The basic idea of this consists in taking one of the possible programs as a base, and "improving" it until the best variant is found. A practical example of the solution of such a problem is cited by P. F. Zhelezniak and E. M. Chetyrkin. (7) In a recently published book by P. Dium an economic model is mentioned which contains 88 unknowns, connected by 77 equations, "expressing the relationships of the economic order and 11 equations expressing relationships in bookkeeping." (8)

Of definite interest is the collection published by Gosstatizdat, in 1958: "Investigations of the Structure of the American Economy," (a translation from the English), devoted to the method of calculation, known under the name "input-output scheme." Based on tables on the distribution of production in inter-sectoral flows, coefficients are calculated which show how much production from one sector goes for the production of a unit of production of other sectors (with a subdivision for expenditures for fixed and working capital). The tables of expenditure coefficients (matrices) serve as a basis for calculating (by methods of linear algebra) the significance of inter-sectoral flows of production. Such computations, as well as succeeding and more complicated ones, can be made with the aid of speedy electronic calculators. The methods expounded in the book allow the determination of coefficients in the matrices not only with reported data, but also purely with calculations based on technological conditions and taking into account the introduction of new techniques. In the preface to the published collection it is correctly remarked that the method of expenditure-output can be successfully applied for the determination of the development of production on a national economic scale only where earlier, in the planning stage, the volume and composition of consumers' demand, foreign trade and capital investments, etc. have been established. For this reason, the most effective use of this method of calculation is possible mainly in a planned socialist economy.

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From the above discussion we can conclude that mathematical models in economics must be more widely used in the following fields mainly:

(1) In economic planning, working out models which reflect the connections between sectors in their development, which summarize change in the relations between parts of the economy, which express the advance in the development of some parts over others (the preferential growth of subdivision I, the preferred growth of commodity circulation of consumers' goods as compared with foodstuffs, the preferential growth of public funds in the income of the population, and others). Here, precise long-term calculations of indices of unequal growth are possible, which take a number of factors into account. It is obvious that the construction of models must inevitably be based on the study of the objective laws of the development of a socialist society on the road to communism. At the basis of the plan calculations must be the starting equation which expresses the faster growth of the productivity of labor, as compared with the growth of the workers' private income. Calculations of connections in the economy in long-term plans determine the outlines of intra-sectoral calculations.

(2) Sector models express mathematically the cooperation between sectors and the cooperation between enterprises. Balances of sectors, construed on mathematical generalizations, make it possible to determine the optimum variants of capital investments. Contemporary computation machines also permit the processing, in a set period, of data on the production of all plants, on supply of materials, on the condition of the machine park, the availability of the labor force, the productivity of labor, on time wasting, etc.; they permit comparison of the indices with the plan and the uninterrupted flow of information on plan fulfillment. This ensures not periodical, but uninterrupted control of the course of production in the sector, as we are speaking of deviations from the mathematically formulated, set standards. Uninterrupted control (simultaneous with periodic control or replacing it) improves operative control of the sector. The best results can be obtained here by centralized processing of calculation data.

The work of the economic councils in coordinating the activity of the branches, as well as in placing orders, is made much easier also if the choice of variants is made on the basis of methods of linear planning.

(3) In their turn, sector models serve as a basis for calculations within the economy. There is no doubt that the choice of a variant for a production program, calculated by methods of linear programming, is the best way of coordinating the separate production activities. Such a model, within the economy, can permit sharp reductions in the losses of labor time, which are connected with shortcomings in the organization of production, and the management of

automats.

(4) Constructing models within the economy can be accompanied by mathematical calculations of the best variants also for single operations. Such calculations permit operative decisions based on objective, logical criteria.

We must keep in mind that in all cases we are speaking only of using mathematics as a special tool, since in decisions of practical questions of economic organization, as well as in planning, there can be no automatism. We must not forget that in every case, mathematics just plays a subsidiary role and does not replace economic analysis; it merely promotes such analysis. Further, we must not forget that a mathematical model shows the best variant of action under given conditions. But reality is more complicated and all conditions cannot be taken into account in equations. However, there is no doubt that an extensive introduction of mathematical calculations in planning and in operative leadership of economic activity will help in further working out highly effective methods of production. And this, in its turn, will help in the discovery of new reserves for the successful fulfillment of the great plan for the development of the economy of the USSR in the period 1959-1965.

Literature Cited

(1) See Voprosy Filosofii, No. I, p. 89.

(2) "Reminiscences on Marx and Engels," Gospolitizdat, 1956, p. 66.

(3) We must point out that the cost of basic means of production does not always accurately reflect the actual production capacity of the enterprise. Thus, two enterprises — a new and an old one — may dispose of the identical production capacity and turn out the same volume of production; however, the valuation of the means of production in the new enterprise will, as a rule, be considerably higher.

(4) In Voprosy Ekonomiki, No. XI, 1958, in the article by I. Blyumin and V. Shlyapentokh there is a misprint for the publication date of his work.

(5) See the collection: "Methods of Studying the Standard of Living," Sotsekgiz, 1959, and also the article by V. Shvirkova in the collection: "Problems of Labor," Volume IV (NIITruda, 1959).

(6) B. Kreko: "Lectures on Linear Programming" (Translated from the Hungarian), Part 3, Siberian Division of the Academy of Sciences, USSR, Moscow-Novosibirsk, 1958, p. 7.

(7) See "Statistics and Econometry," MFI, 1959.

(8) P. Dium, "Enterprises and Statistics," Gosstatizdat, 1958, p. 366.

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L. Saltzman:

Problems of Specialization in Cattle Breeding in the Current Seven-Year Period

The successes achieved in our country during the past five years in the development of agriculture have led to a significant increase in the production of milk, meat, wool and other products of animal husbandry. In the current seven-year plan, new tasks in the development of stock breeding are set for the state and collective farms of the country. Of great importance for the successful accomplishment of these tasks is the question of ways of increasing the production of milk and meat from cattle and of the improvement of the feed base. In this article, we will not discuss questions of the development of other branches of animal husbandry, but we will examine only problems of the development of a given branch of stockbreeding; it is in this sense that we use the term "cattle breeding."

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One of the basic problems of the development of stockbreeding in the USSR in the present seven-year period is the question of how much specialization is advisable in cattle breeding for beef and milk production.

In deciding the question of the economic expediency of developing dairy and beef cattle breeding, we must take into account that for the production of one hundredweight of beef (slaughtered weight), we must expend approximately 8-15 times more feed units and egg white and 2-4 times more labor, than for obtaining one hundredweight of milk (if cows yield, on the average, 2-3 thousand kg. a year). At the same time, the caloric content of one hundredweight of beef is only 3-6 times higher than the caloric content of one hundredweight of milk, but its price in the USSR, as well as in other countries, is approximately 7-10 times higher. We must also take into account that differences in the yields of cows of different breeds are much greater (1:10 times more) than differences in their live weight (1:3). Moreover, we must mention that the cost of the entire production from one cow in cattle breeding for milk-beef, or for intensive milk production, is usually 1.5 and more times higher than in cattle breeding for beef production only.

These facts explain the distribution and specialization in the production of milk and beef which has taken place in cattle breeding throughout the world. Practice has shown that combined dairy and beef cattle breeding is economically effective in those districts where it is possible to achieve sufficiently high yields of milk with relative cheap fodder. In those districts, however, where fodder is relatively expensive, but where conditions are good for obtaining high milk yields, cattle breeding is usually aimed only at milk production, while young animals are sold for meat at an early age. For every 100 kg. of milk, these districts produce only 2-3 kg. of beef, instead of 5-8 kg. as in dairy-beef cattle breeding, and 8-12 kg. as in beef-dairy cattle-breeding. Cattle breeding for milk production is developed in Norway, Holland, Denmark, Sweden, and a number of other foreign countries, and also in many suburban districts of the USSR. One-sided cattle breeding for meat production is expedient only if extremely cheap fodder is available and it is essentially a forced affair. It is widespread, as a rule, in regions where, for natural or other reasons, it is difficult to obtain high milk yields, or where farms do not dispose of a sufficiently large labor force.

As is well known in the USA, in the last ten years, substantial specialization of dairy and beef herds of cattle has taken place; there, the proportion of beef cattle is about 60% of all cattle, while beef cows constitute about 50% of the total number of cows. In connection with this, it is natural to ask how expedient such a specialization would be for the USSR in the coming years.

In the USA, cattle breeding for beef is mainly developed in the arid pasture districts of the West of the country. In the majority of these regions, the cattle are kept at pasture from 9 to 11-12 months a year. For feeding one head of cattle for a year, on the average about 10 ha. of pasture land is required. In the pasture regions of the Western USA (which have a yearly precipitation of about 400 mm, or more, and almost snow-free winters on the plains), mainly beef cows are bred. The calves of these cows are later sent to the corn fields and the Northeastern lake districts to be raised, fed and fattened. However, some Western farms which have developed grain production and have natural pasture lands as well, or which possess extensive pasture lands, undertake the raising, feeding and fattening of calves up to 1.5-2.5 years, on the spot.

In the USSR, beef cattle raising is carried on either in the Eastern arid plain regions (the left bank of the Volga, Kazakhstan, Central Asia, Western Siberia) or in the hilly regions (Azerbaidzhan, Kirghizia, and others), or in the sparsely populated pasture lands of Eastern Siberia. Mass feeding and fattening of cattle is economically more profitable in those regions, where there is cheap fodder (for example, pressed feeds, grains, feed straw, silage), and also in districts with an abundance of pasture land for fattening cattle (steppe pastures, remote extensive tracts of land, etc.).

However, in the USSR, as opposed to the USA, non-agricultural pasture lands suitable for the organization of beef cattle raising (with a yearly precipitation of 250-350 mm, with almost snow-free winters and a pasturing period of 9-12 months) form a relatively small proportion of the extensive pastures of our country. They are concentrated mainly on the left bank of the Volga, in the Western Kazakhstan, Guriev, Astrakhan and Stalingrad regions, in the Kalmyk ASSR and partly in the Grozny region; further, in the Stavropol territory and in some southern and eastern districts of Kazakhstan, Siberia, Kirghizia and Transcaucasia. But only about 10% of the cattle livestock of the country are contained in these regions. The main part of the non-agricultural pasture lands, however, is characterized by snowy winters, of 5-6 months duration, and by arid summers (yearly precipitation less than 250 mm). Thus, it is more expedient to breed sheep and horses here, which can get their fodder from under the snow and are less demanding

in this respect.

The greatest number of beef-producing state farms are located in the non-agricultural regions of the USSR, suitable for beef cattle breeding. Here also, many collective farms have herds of beef cattle. In the current seven-year period, cattle breeding for beef production will not only be further developed, but will also be reorganized.

The negative side of the existing system of cattle breeding for beef production in the above-mentioned regions, is that the calves, after being fed by the valuable nurse-cow method, at the age of 5-6 months must cope with the difficult conditions of winter maintenance. Thus, in the critical period of their physiological development and at the time when considerable gains in weight are possible — in fact, in the course of a few winter months — they not only gain no weight, but often even, towards springtime, they lose some weight. Consequently, even if the young animal achieves great gains in weight later, he will not have reached his full weight by the age of 1.5. For this reason, he is left on the farm for further care for another year, which is economically unprofitable.

However, the majority of state and collective farms concerned with beef cattle breeding by pasturing can improve winter feeding and maintenance of the young animals without great additional outlays (by setting up winter reserves of hay and silage and partly also of concentrated fodder, and by making the calf barns habitable for the winter) and achieve in winter a daily — even though small — gain in weight for the calves — about 300 gr. In the summer, when the pastures are burned up, it is possible to organize partial additional feeding of the cattle. This will make it possible to slaughter a young animal at his full weight, at the age of 18-20 months, instead of at 30 months, and to increase the number of beef cows raised on the same area (estimated for 100 ha. of arable land). In the districts of the Orenburg region, this method combined with the doubled nurse-cow method of feeding (two calves are fed by one cow), had very positive results. The cost of weight gains for a young animal was lowered by 32%. A young animal raised by such methods weighed 213 kg. at the age of 7-8 months, and at 18 months, was sent to slaughter with an average weight of 328 kg. When the animal was slaughtered, heavy tanning raw material — i.e., the most valuable kind — was obtained. As a result, the farms of the Orenburg region reduced the duration of the cycle of production of meat from 30 to 18 months, or by 40%, and obtained additional meat production. Calculations show that, as a result of such a reduction in the duration of the production cycle, a farm can support, on the same land area, not less than 10-15% more cows and increase the production of beef and milk by no less than 15-20%.

The experience of the Orenburg, Saratov and other farms convinces us that, in the present seven-year period, it is advisable to replace the simplified system of cattle breeding for meat in our pasture lands by a more intensive pasture crop system, by introducing improved methods of feeding and maintaining the cattle in the most critical periods of their growth and development, and also during the least favorable seasons of the year.

In connection with the acquisition of 36 million ha. of virgin lands in the eastern USSR, the question arises also of the aim of cattle breeding in the numerous, newly-formed farms of this region. A part of these farms are situated in districts little suited for milk production, but well suited for beef cattle breeding. In such farms, it is advisable either to systematically admit young animals from nearby pasturing farms, for feeding and raising, where this is economically expedient, or — given the existence on a given farm, not only of on the spot cheap winter fodder (straw, silage, grain wastes, etc.), but also of summer pastures — to organize locally a farm for beef cattle with a so-called "completed turnover of the herd" (breeding, rearing, feeding, and fattening of the cattle). According to preliminary calculations, the total area of farms in the newly acquired lands where it is possible to organize farms for beef cattle constitutes about 10-15 million ha. In the current seven-year period it will be possible to bring the number of livestock on this area up to 2-3 million head and to obtain about 3-4 million hundredweight of beef (live weight) each year.

In farms newly constituted on the virgin and fallow lands of the left bank of the Volga, the northern districts of Kazakhstan and, partly, in Siberia, where conditions are suitable for the development of beef cattle breeding, we must first of all decide the question of choosing the most rational system of agriculture. In the majority of these farms, in our opinion, it is advisable to create grass wedges at the same time, as using fallow in crop rotation, or to sow additional grasses in the field last used for grain; these should preferably be wild grasses, which exist in abundance here (darnel and wheat grass). These grasses can not only serve as fodder for the cattle for 2-4 years, but will also increase the yield from the fields.

However, basically non-agricultural and virgin regions situated in the zone for beef cattle breeding can supply only about 25% of the beef needs of the country during the present seven-year period, even if their production increases greatly. This is explained by the fact that the majority of the pastures of the eastern districts, because of natural conditions, are more suitable for sheep raising than for beef cattle breeding. This leads to the conclusion that the basic providers of beef and veal in the next years in our country will still be the cattle breeding farms, specializing in milk-meat, milk and meat-milk production. However, on many of these farms, particularly on dairy farms in suburban areas, meat production is not paid the necessary attention. This results in a great number of dry cows and leads to waste. Also, young animals are slaughtered at an early age, especially in the private farm households of collective farmers, workers and employees. In a number of suburban districts, the slaughter of supernumerary calves at the age of 10-15 days has become an ordinary occurrence. As a result, the country loses annually not less than 5-6 million calves, which could have been raised to the age of 16-20 months and could have given the country an additional 15-20 million hundredweight of meat (live weight).

Early slaughtering of calves, especially in districts which produce whole milk, is often caused by the fact that it is economically unprofitable to feed calves on whole milk, and also by the insufficient local supply of green feeds, coarse forage and other cheap fodder. However, the method of feeding calves on cheap dried milk is widely used abroad. We must also think about this seriously, taking into account that calves can be successfully fed on fat-free milk; for this it would be expedient to organize the production of dried milk for calves in the heart of the butter-producing districts. At the same time, we must introduce some cheap milk substitutes into a part of the ration of milk calves, in particular potatoes and special combined feeds.

In England and other foreign countries, and recently also in the USSR, the nurse-cow method of feeding has been introduced on dairy farms, where 2-5 and more calves are fed by one cow. This permits the reduction of labor outlays and reduces the cost of calves by about 30%, compared with the usual system of feeding.

The problem of the advisability of using the nurse-cow method has become the pressing question of the day, not only

in beef cattle breeding, but also in dairy cattle breeding. In many meat-producing state farms, the method of double nurse cow feeding has proved justified; two calves are fed by one cow, and from the more productive cows, marketable milk is obtained. For double nurse-cow feeding, cows are usually used who give a small yield, 800-1000 kg. a year. It is also expedient to use cows for this purpose whose yield is going down because of age.

The question is more complicated when it comes to the use of group nurse-cow feeding milk-producing districts, where cows have an average productivity of 2-3 thousand kg. a year. Such a cow can be used for feeding 4-5 calves, but for this, more or less regular calvings throughout the year are necessary. With regular calvings and the use of the group nurse-cow system, 4-5 calves a year can be fed by one cow and expenditures for raising a calf are significantly reduced; the need for a calf herder to care for each 25 calves disappears, a number of milkmaids are freed and the maintenance of calves is greatly simplified, etc. The correct solution of the question of the group or double nurse-cow system of feeding can save hundreds of millions of rubles on collective and state farms during the next seven years.

While increasing the density of the cattle, and especially of the cows, on each 100 ha. of land, it is necessary to look over the aims of cattle breeding in a number of districts and farms and to establish a proportionate number of cows in herd, which will ensure the greatest possible results in milk as in beef production from each cow. However, many districts, state and collective farms of the north, northwest, the central black earth zone of the RSFSR, the Ukrainian SSR, the Volga region, the Byelorussian SSR, the Baltic republics and even of the Urals and Siberia, which dispose of a sufficient amount of land, plan, in their long-term calculations, a proportion of cows to the herd of no less than 60-65%. Thus, in fact, they are planning the slaughter, before they are one year old (to a great degree, before they are 6 months old) of all supernumerary young animals which represent the basic source of beef production. We must also take into account that cows often constitute 70-80% of the private herds of collective farmers.

However, producing veal instead of beef and building up the proportion of cows in a herd to 60-65% is permissible only in districts which are poor in land, in suburban areas and others, where the density of livestock for each 100 ha. of farm land is 50 and more head of cattle (taking the grown cattle). Here, with a high intensity of feed production (1-1.5 ha. of the feed area for each counted head of cattle), it is advisable to produce above all whole milk and not beef. But this is not and cannot be the rule for the majority of those farms and districts of the non-black earth area, the Urals, Siberia and others, where there is enough feed area (2-3 ha. and more for one counted head of cattle) for the simultaneous production of milk and beef and where the density of the cattle is not higher than 30-40 counted head for each 100 ha. of farm land. This applies also to a number of districts rich in land, near small towns and industrial centers (Urals, Byelorussian SSR, Siberia the Volga region, Kazakhstan and others). The proportion of cows in the herd, with the general low density of livestock, must here be 40-55%. In the Southeastern arid districts of the USSR, on the other hand, it is advisable to increase the proportion of cows in the herd during the coming years (estimating that the young animals will be slaughtered not at 2.5 but at 1.5 years of age) to 35-40%. This will make it possible to increase the proportion of beef in the meat diet of the country by the end of the seven years.

The production of beef in many districts of dairy farming and beef cattle breeding is based on the delivery of rejected animals (mostly because of age) without fattening them, instead of raising young animals for meat and organizing a yearly, regular feeding and fattening of all cattle destined for slaughter. Of decisive importance in this respect is the correct feeding of young animals in the winter and the organization of a summer pasture conveyor system, based on natural or sown grasses, depending on the characteristics of the district.

Not many years ago, the small size of collective farm herds and the need for building up inter-collective farm fattened herds held up the organization of the fattening of beef cattle in many districts (particularly in the non-black earth belt). At the present time, with the increase in the size of collective farms and the growth of the number of cows in them, favorable conditions exist in the majority of collective farms for the establishment of their own herds of cattle for fattening.

An important source of cheap beef in the near future will be the fattening points near beet sugar, distilling and other plants, especially since the production of beet sugar plants will be sharply increased during the current seven-year period especially in those districts where there is a large amount of cattle. By fattening cattle on press feeds and grains, we can produce 10-15% of the entire beef production of the country each year.

We must emphasize that in recent years many new farms have sprung up on the virgin lands in the Eastern districts of dairy and beef cattle breeding (the region behind the Urals, Western and Eastern Siberia, and Northern Kazakhstan), which specialize in the production of grains. In the coming years, various branches of animal husbandry will be set up, among others, also cattle breeding. In connection with this, we must determine the most suitable form of organization of cattle breeding in such farms, situated as they are in an area of milk and beef cattle breeding.

This question can be solved in various ways. In some cases the farm, having prepared the necessary winter and summer feed base and buildings, organizes a farm for milk and beef production with a complete turnover of the herd. In other cases, in those farms where the necessary material conditions and the necessary experience for such an organization do not yet exist, it will be advisable, at first to organize only special herds for raising and fattening cattle; this can be done by contracting with nearby state and collective farms, as well as with workers, collective farmers and employees and by autumn purchases of young animals from them. These cattle can be raised and fattened by using silage, feed straw and grain waste in the winter, and natural pasture and sown grasses for green feed in the summer. As conditions develop, favorable for the creation of its own dairy herd, the farm can organize dairy and beef production with a complete turnover of the herd, while continuing or stopping yearly contracting for beef herds from outside, according to local conditions. If systematic contracting of young animals for meat from nearby farms is impossible, the farms of this area can, at first, set up establishments for beef production, with a simplified system of cattle maintenance. On such farms, calves are fed by the nurse-cow method and cows are, at first, not milked at all. Later, as the herd is organized, the most productive cows are picked out for the production of marketable milk and the others are left to feed the calves, as nurse cows. When a special herd of milch cows is separated out, the process of transition from beef production to beef-dairy cattle breeding and further, even to dairy-beef cattle breeding, is accomplished.

An important task of the current seven-year period is the

increase of the production of cattle breeding products and the maximum reduction in the cost of milk and meat. This last is connected not only with the reduction in feed costs, which constitute about 50% of all production expenses in cattle breeding, but also with reductions of labor costs, which are still very high.

However, practice in the USSR and abroad has shown that the mechanization of labor-consuming production processes in cattle breeding (milking, distributing fodder, carrying out dung), while retaining the usual system of cattle maintenance in individual stalls, is not sufficiently effective, even with high capital outlays for each head of cattle. The best effect is attained with a free system of cattle maintenance in half-open or simplified closed localities, where the animals get at their fodder and automatic drinking bowls by themselves. For machine milking and individual feeding of cattle with concentrated feeds, special milking points or areas in the cowsheds are set up. This system is widely used abroad. In our opinion, it should be widely introduced in our state and collective farms. Where this system is introduced, the productivity of labor is increased (judging by the experience of single farms) by no less than double. Also, the cost of the construction of farmyards and of the mechanization of production processes is lowered no less than two times. It is well known that the sum total of capital investments in agriculture in the seven-year period amounts to about 500 billion rubles, of which no less than 10-15% is needed for the construction of farmyards. Thus, the transition to the construction of the new type of farmyards will make possible a saving of many billions of rubles in the seven-year period.

However, the mass introduction of the free system of cattle maintenance still encounters many difficulties. With such a system, expenditures for litter are almost doubled, as there is insufficient litter in a number of our farms (especially in the non-black earth zone). As for fodder, according to information from experienced establishments in Finland and Sweden, expenditures for fodder under the free system are increased by about 4% for one cow and the quantity of milk obtained decreases by 3% approximately However, the fat content of the milk is increased by 5-10%. The increase in feed costs for a unit of production and the increase in the fat content of the milk is explained by climatic conditions in Finland and Sweden (lower temperatures in half-open farmyards of the new type). This can be expected also in the northern and central districts of the RSFSR, especially in the regions of the Urals and Siberia. Different conditions prevail in the southern regions of the USSR, where the temperature in half-open farmyards hardly differs from the outside temperature. This is one of the reasons why the free system of cattle maintenance first began to spread in the southern regions of the Ukrainian SSR and in the northern Caucasus. It is being introduced more slowly in the northern districts of the country.

At the present time, the question of changing over to the free system of cattle maintenance must be seriously debated by state and collective farms. However, a general, indiscriminate transition to this system, without considering climatic, forage and other conditions would be incorrect.

For this reason, we consider it advisable to change over to free maintenance, first of all, of all groups of cattle (except milch cows and bulls) in all zones of the USSR. For the change-over to free maintenance of milch cows, measures must be taken to provide the cattle with fodder and litter. If this is done, the transition to the new system of maintenance for milch cows will encounter the least difficulty in southern regions and in the more northern regions, which are most important for butter production (Western Siberia, the regions of the Volga, Northern Kazakhstan, a number of regions of the Central Black Earth Zone, the Ukrainian SSR and the Northern Caucasus), which have sufficient supplies of winter fodder and litter. However, in the regions where cattle are raised for whole milk production, in suburban and other areas, with a more strained balance of fodder and litter, a more careful preparation for the transition of cows to the new system of maintenance is necessary. Thus, in a number of regions of the non-black earth zone, it is advisable to organize peat-litter plants, to provide state and collective farms with peat and moss litter; this will speed up the transition to the new system of cattle maintenance.

In our opinion, the transition of dairy farms to the free system of cattle maintenance, while at the same time widely introducing the change-over to feeding calves by the nurse-cow method, will permit not only savings of billions of rubles for construction and mechanization, but will also reduce production expenditures by not less than 15-20% for each unit of milk and beef.

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In recent years substantial changes have taken place in the feed base of the USSR. The great increase in sown corn has resulted in an important strengthening of the animal fodder base, especially a sharp increase in resources of succulent feeds. The proportion of feed crops of the whole sown area of the country grew in 1957 to 23.4%, as against 12% in 1940 and 2.8% in 1913. By November 1, 1958 collective and state farms prepared 111 million tons of coarse feeds (including 58 million tons of hay), 148 million tons of silage (including 108 million tons of corn silage); this means 10.5 tons of silage for each cow.

However, the tempo of intensifying the feed base is not the same for winter and summer forage. It is true that in some districts of the Ukrainian SSR, the Central Black Earth Zone, the Northern Caucasus and the Baltic regions, and in some suburban areas, great strides have been made in the intensification of the summer feed base: sown, green conveyors have been set up of annual grasses, corn and perennial herbs, long-standing sown pastures have been organized, as well as summer feeding and camp maintenance of cattle. At the same time, in many state and collective farms the cattle are still maintained on natural, low-producing pastures.

The system of penning cattle, green conveyors and pasture rotation is not organized in sufficient measure. In some distant regions, great tracts of pasture lands are not only little used, but neither the area, nor the character of the grasses are taken into account. However, the problem of the organization of a summer feed base is of no less significance than the problem of preparing winter feeds. It is well known that in the USSR a great part of the production of milk and butter from cattle and sheep is actually obtained in the summer, due to green feeds, which are not only the most valuable, but also one of the cheapest feeds. In this connection, it is necessary to work out carefully, for each farm, ways of improving the summer feed base and, for each natural economic zone, the most rational methods of building up a summer feed base suitable for the various branches of animal husbandry.

As is well known, the area of pasture land in the USSR consists of more than 200 million ha., or about 40% of all the agricultural lands of the country. According to long-term calculations by the Council for the Study of Production Resources of the Academy of Sciences of the USSR, green feeds will make up more than 30% of the fodder balance, including forage from natural pastures — about 17%.

Analysis of the cost of a feed unit in green feeds has shown that this type of feed is extremely cheap and, compared with the cost of one unit of feed in grains, amounts to 53% in sown perennial grasses, 75% in annual grasses, 65% in corn green feeds and 47% in perennial pasture crops, on an average for state farms of the USSR.

Summer green feed is cheaper also, as compared with succulent winter feeds. It is well known that in 1958 5.7 million ha., or 29% of all sown corn, was used as green feed. However, such a use of corn is inadvisable, as was pointed out by Comrade N. S. Khrushchev in his closing speech at the December (1958) Plenum of the Central Committee of the Communist Party of the Soviet Union.

The organization of a rational summer feed base, particularly for cattle, must take into consideration a number of zonal peculiarities of agriculture and animal husbandry. In solving this important problem correctly for all basic zones of the USSR, concrete conditions must be fully taken into account.

The northern, northwestern and central non-black earth zone (the European part of the RSFSR, the BSSR and the Baltic republics) play an enormous part in milk production — especially whole milk — at the present time and will continue to do so in the coming years. They produce about 30% of all the milk produced in the country, or from 250 to 500 or more hundredweight of milk for each 100 ha. of agricultural lands. This is a zone of intensive cattle breeding, with milk as the prevalent product in the given branch. Here, for each kg. of beef twice the amount of milk is produced than in the other zones of the country. The cost of one hundredweight of milk is only 1 1/2 times higher than the cost of one hundredweight of grain, while in the Ukrainian SSR, Moldavia and the Northern Caucasus it is 2.5 times higher. The proportion of farm lands at the disposal of agricultural enterprises in this zone is about 40-50% of the whole agricultural area, the proportion of arable lands comes to only 20-35%, and the proportion of natural hay and pasture lands to 50-80% of the whole feed area.

In this same zone half of the yearly milk yield (and in a number of places even two-thirds) is obtained during the pasturing period. According to state farm accounts, a feed unit is 1.5-2 times cheaper in green feed than in hay or silage, and 2-3 times cheaper than in potatoes, grain and root crops.

In recent years the production of winter succulent feeds — corn silage, potatoes, etc. — has increased. At the same time, in many farms, there is a lack of green feed, which slows down the growth of livestock and, particularly, the increase in milk yields. Natural pastures usually bring small harvests and give 3-4 times less green bulk than sown grasses, especially perennials. For the sustenance of one cow, usually 2-3 ha. of dry natural pasture are required. However, the use of arable land for obtaining green bulk can result in reduction in the sowing of marketable, technical or food crops. For this reason, it is advisable to concentrate the production of green fields in the non-black earth zones as far as possible, on specially assigned plots, with a high productivity, rather than in crop rotation areas.

In recent years the practice of creating artificial long-term pasture crops has become widely known. The cost of a feed unit of green feed on such pastures is 1.5-2 times less than that of a feed unit of green feed on ordinary crop rotations. On one ha. of these pastures, yielding 2-3 thousand, and more, feed units, it is possible to sustain 2-3 cows, and to reduce significantly the cost of milk during the summer period. The practice in England and in the Scandinavian countries affirms the correctness of such a solution of the problem of producing green feed in the non-black earth belt. However, the creation of permanent, artificial pastures, which can be used for a period of 20-30 years in the eastern regions of the non-black earth zone of the USSR, is made difficult by climatic conditions. However, even here the solution of this is already planned, by the creation of "variable" artificial crop pastures for long-term use. Parts of such pastures, after suitable preparation, are sown with a mixture of grasses (clover, timothy grass, meadow fescue, etc.) and are used for pasturing cattle for 4-5 years; after that they are plowed up and soon again sown with a mixture of grasses. Two to three cows can be sustained on one ha. of such a pasture, whereas the cost of a feed unit of green feed will only be a little higher than on the permanent long-term pastures.

Such a solution of the question will make it possible to extend the zone of highly productive artificial crop pastures almost to all regions of the non-black earth zone and solve one of the most difficult problems; the production of cheap green feed of full value. In all this only relatively small areas must be included in the allotments for pasture crops — altogether 0.3-0.5 ha. for each cow. This will leave the arable area of many farms almost untouched.

The problem of a rational build-up of a summer feed base in the non-black earth zone is closely connected with a no less important question: the concentration and further specialization of animal husbandry farms in this area. After the consolidation of collective farms in the non-black earth zone, many small collective farms became brigades of the big farms and retained their previous distribution of villages, crop rotations and cattle raising. As the land plots are small and it is difficult to combine them into large tracts, in many collective farms the cattle are dispersed in several directions, as before.

Sections of arable lands, pastures and other farm lands are extraordinarily small in many collective farms of the non-black earth zone. Thus, according to the data of the Academy of Sciences of the Lithuanian SSR, plots and arable land up to 12 ha. constitute 29%, those from 1-2 ha. constitute 24%, those from 3-5 ha. constitute 15% of the whole arable land in the republic, while, in the western regions of the republic, plots up to 1 ha. in size constitute 60% of the entire arable land. A similar situation can be noted in many collective farms of the non-black earth zone.

All this hinders mechanization of agricultural processes, concentration of cattle breeding farms within collective farms and the correct use of the labor force, as well as the reduction of costs in agricultural production. For this reason the problems of the concentration of livestock and of specialization of individual cattle breeding farms within each collective farms must be linked with measures to combine land plots into large ones and with plans for distribution of crop rotation on pastures and meadow lands.

In the non-black earth belt, the creation of artificial pastures is possible by more rapid flooding of the corresponding allotments of natural lands, without employing costly labor for the preparatory plowing up of the land and for rooting out the stumps. This method is the most effective for many farms of the forest zone; it makes the extension of pasture land possible at the same time. Several years after the flooding of the pasture, when the stumps which have not been uprooted have decomposed, it is easy to plow up the land and extend such a tract, as well as to use it later as arable land for forage or for other purposes.

In regions with sufficient moisture (the Urals, Siberia and other eastern regions of the country) with a low density of livestock and with vast natural summer pasture lands, the level of milk yields and the weight gains of fattened

cattle in the summer period depend fundamentally on the productivity of the natural pastures and are inversely proportional to the amount of time which the cattle spend on the move in the pastures every day. For this reason it is advisable here to organize crop rotation on the pastures for green feed, preferably with a mixture of cereal and leguminous crops; this will greatly reduce the movement of cattle on the pastures and the amount of pasture land needed for the feeding of one cow will be reduced by 20-25% and more. Moreover, this will also serve to prevent the sharp falling-off of the milk yield at the beginning of the autumn.

Very acute today is the problem of a summer feed base in the intensive forest steppes and steppe regions of districts in the Ukrainian SSR, the central black earth zone, the Northern Caucasus and Moldavia, where the land is very largely plowed up. The insignificant dimensions and low productivity of the natural pastures (situated predominantly on slopes and ravines), climatic conditions which make it impossible to create artificial pastures for long-term use in these regions, and the hot summer period, when perennial grasses are burned up — all this mainly calls for the setting up here of a summer sown green conveyor; this should be predominantly made up of annual crops, which will not burn up in the summer and which often give even greater yields than perennial grasses.

A green conveyor in this region is extremely complicated as to the composition of crops and must be sown at various periods. This explains why the allotments are sometimes small, which makes pasturing on them difficult and makes it necessary to feed the cattle a great deal of green bulk in summer camps, after it has been cut. This is why the camp-stall system of cattle maintenance in the summer is so widespread in this zone.

In recent years the green conveyor of the type described above has been widely used in the forest-steppe and forest regions of the RSFSR, the Ukrainian SSR and the Moldavian SSR. As it is extremely intensive, only 0.3-0.5 ha. of such a conveyor is needed for one milch cow and it assumes high milk yields during the summer period. In the near future it will be necessary to develop and rationalize it (choose the highest yielding crops and species, make the periods of sowing more definite, find better locations for it on the territory of the farms, etc.). It is also necessary to decide finally the disputed question of when it is more expedient in these regions to use pasturing and when the green feed should be cut.

A different solution must be found for the question of creating a summer feed base in the eastern arid regions of the country, where large tracts of natural pastures predominate, which burn out in the summer. As distinct from the regions of the Ukrainian SSR and the Northern Caucasus, where the land is largely plowed up, in the arid regions of the left bank of the Volga, Kazakhstan, around the Caspian Sea, and in other regions, the green conveyor for pasturing the cattle in spring, summer, autumn and winter seems basically suitable; various sectors of the natural pastures should be used. With this system, every seasonal pasture needs the application of special methods for further improvement.

Spring pastures provide the cattle with the greatest quantity of green feed; these pastures are often autumn pastures at the same time, as the cattle come back there in the autumn. Spring pastures often contain a superfluous quantity of green bulk, which it is advisable to cut and to ensilage for subsequent use in the autumn, summer or winter. In the summer period, on the other hand, an acute lack of green feed is felt in the level, arid pastures. For this reason, it is necessary to organize, wherever possible, special sowing of grasses on the pastures (dry or watered). For this purpose also, estuary irrigation is used. Another important method of making up the deficit of green bulk is the setting up of silos near summer pastures, for wild grasses or sown crops and feeding it to the cattle in summer to supplement the pasture forage. The most anxious period in these regions is the winter. One of the important tasks of the regions of pastured cattle breeding in the current seven-year period, is to transform this period into one of active production of stock breeding products. For this purpose stocks of coarse fodder must be accumulated on winter pastures and, wherever possible, reserves of silage must also be prepared, not only as insurance, but also for the systematic feeding of cattle, supplementing the winter pasture.

A serious obstacle for the further use of vast pasture lands of the Southeastern USSR, especially during the winter, is their inadequate supply of water troughs. When digging wells, it is necessary to mechanize the drawing of water, using the energy of the wind for the purpose. There, where supplying the pastures with water is possible only by leading up canals from distant sources, and where a large proportion of the water is lost in open canals, we must try the method of laying underground pipes by machinery for bringing water to the pastures, making use of the available experience from abroad.

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The question of the feed base is closely linked with problems of the seasonal nature of milk and meat production in state and collective farms of various zones of the USSR.

In our literature the question was raised more than once of the need for abolishing the seasonal nature of meat and milk production. Regular output of meat and milk products by state and collective farms the whole year around would permit improvement in the utilization of basic means of production and of the labor resources in enterprises producing and processing milk and meat; the work would be organized in a better rhythm; this would also be true in transportation work. Further, the need for warehouse space would be reduced, etc. Nonetheless, in the coming years, the seasonal nature of milk and meat production will still depend to a large degree on zonal conditions in the production of these products and, in particular, on the economics of fodder production and on a rational system of cattle maintenance in any given zone of the country.

How can we solve the problem of the seasonal nature of milk and meat production in the main agricultural zones of the USSR in the next few years?

As regards milk, the transition to regular year-round production is achieved mainly in districts which produce whole milk for supplying cities, resorts and industrial centers. This is stimulated not only by high winter prices for whole milk, but also by the fact that the summer pasturing base for many of these districts is extremely limited. All this creates the prerequisites for more regular calvings during the year. It is also economically expedient to increase the percentage of autumn and winter calvings in those farms of the Ukrainian SSR, the central black earth zone and the Northern Caucasus, which are situated in zones of sugar beet production and distilleries. Here also it is necessary to put supernumerary calves from autumn and winter calvings, which are destined for slaughter at the age of 8-12 months, on a cheaper winter fattening fodder, according to local conditions (press feeds, waste from the distilleries), and to slaughter them before the pasturing period; this by itself will equalize the seasonal nature of meat production.

However, in the majority of the regions of the USSR, the seasonal nature of milk and meat production, especially of cattle and sheep, is based on serious economic

considerations. Thus, in many regions of butter production, cheese-making and beef cattle breeding (the Urals, the Volga region, Western and Eastern Siberia, Kazakhstan, the Transcaucasus, etc.), where the cost of a feed unit in summer green feed is 2-3 times lower than in winter feeds, or even less, state and collective farms try to obtain the greatest amount of milk and meat while using cheap pasture fodder. Thus, an investigation made on the state farms of the Orenburg region showed that here cows with winter and autumn calvings give 23% more milk during the lactation period than cows with summer-autumn calvings; however, the cost of 1 kg. of milk is 36% lower. Fattening of cattle and sheep on pastures is also much cheaper than feeding them on winter fodder. A similar situation can be observed in many hilly districts (Georgia, Armenia, Northern Caucasus and others), especially in those cheese-making districts where the best kind of cheese can be obtained only by using high quality summer mountain pastures.

While modifying the seasonal nature of meat production, we must take into account the peculiarities of cattle, sheep, pigs and fowl. The greatest place in the meat diet in the current seven-year period will be taken up by pork and beef; their proportional weight in over-all meat production will reach 70-75%. In the coming years, in the majority of districts of the USSR, it will be impossible, because of the specific nature of the feed base, to achieve a regular, year-round production of beef and mutton. These meats are best obtained mainly in autumn, after fattening the livestock on pastures. However, we must finish with the fattening of pigs mainly in the winter and spring period. Such a seasonal regulation, by slaughtering various kinds of animals at different times, ensures the rhythmical work of industrial enterprises and will be in accordance with the characteristics of fodder production in state and collective farms and with the economic interests of such farms. This problem must be taken into account by plannning and agricultural organs, when they plan purchases and deliveries of meat and milk production in the state and collective farms of various zones of the USSR.

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NOTKIN (Continued From Page 9)

capitalist countries in the levels of industrial production increased considerably in 1958. Thus, in 1958 steel production in the USSR grew by 3.9 million tons while in England, the Federal Republic of Germany and France it diminished; the output of electric energy grew by 23.5 billion kwh. in the USSR, by 13 billion kwh. (an estimate) in England, by 5 billion kwh. in the Federal Republic of Germany (excluding the Saar), and in France it barely increased; the production of cement increased by 4.4 million tons in the USSR while in the Federal Republic of Germany it increased insignificantly; in England and France it declined.

(4) Excluding the Saar.

(5) The share of production accumulation as a whole will increase to a smaller extent than the share of investments in basic production funds because investments in circulating funds will grow less than in basic funds.

(6) See, for example, the book by J. I. Calvez, Revenu National en URSS (Problemes theoretiques et description statistique), Paris 1956.

(7) G. Grossman, "Some Current Trends in Soviet Capital Formation" (Capital Formation and Economic Growth, 1955) Grossman's formula does not consider, in particular, that the Soviet state invests considerable resources in the sphere of serving not only the urban but also the rural population.

(8) See, for example, A. Eckstein and P. Gutman, "Capital and Output in the Soviet Union, 1928-1937," (Review of Economics and Statistics, 1956, Vol. 38, No. 4).

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race and to begin competition in raising peaceful production and in increasing the living standards of the people. If the defenders of capitalism are afraid of this kind of competition, then they display their own lack of faith in the possibilities of the "system of free enterprise" which they praise, and are frightened by the triumphant progress of the countries of the socialist system. However, the intrigues of the apologists of capitalism will not be able to stop the noticeable lessening of international tension, the objectively inevitable expansion and strengthening of economic and cultural ties between peoples living under differing social systems.

LITERATURE CITED

(1) CPSU in Resolutions and Decisions of Congresses, Conferences and Plenums of the CC, Part I, 1953, p. 478.
(2) V. I. Lenin, Collected Works, Vol. 26, p. 386.

Peter Erdesz:

Commodity Production and Value Categories in a Socialist Economy

(Hungarian People's Republic)

One of the most difficult and most widely discussed questions on commodity production in a socialist economy is the question of the reason for the preservation of commodity relations and value categories.

The commodity character of products under socialism is expressed most visibly by the fact that they are sold for money. The discussion on the commodity character of products under conditions of socialism would be exhausted if it was proved that money is money in the full, classical sense of the word, or, on the contrary, that it is merely a token and an acknowledgement of labor.

Undoubtedly money, under socialism, serves for accounting and certifying labor expenses. But it serves not only for this. It also has other functions, which are most essential for an understanding of the nature of money and commodity relations under socialism.

Measuring and accounting for labor with the help of money is accomplished not during working time, but in a round-about manner, by the exchange value, by prices, as they deviate from value ratios. Such a deviation is the essential attribute of commodity relations and value categories. Prices, with their deviations from value, have a stimulating or inhibiting effect on various economic processes and actively influence them. They play such a role also under socialism.

The money income of the workers, the price level and the relations between prices of various commodities and services exert a definite influence on the level and structure of demand for various consumers' goods, on the actual process of purchases and consumption. Money, in this case, is by no means only a receipt for labor and prices are not merely a measure of the payment to labor in the production of commodities. The proportions of demand change with the proportions of prices and depend on their deviation from value proportions. The deviation of prices from value proportions is necessary under socialism to bring the demand for certain goods into balance with the actual volume of production of these goods. By establishing fairly high prices, we limit the demand for various kinds of goods, while, by establishing relative low prices, we stimulate their sale. Thus, prices for consumers' goods are not neutral under socialism. They influence the formation of demand, they exercise the function of redistributing a certain part of the national income and they correct the distribution and use of private income. One and the same sum of money can assign various values to various kinds of goods, because of a varying price level, depending on what kinds of commodities we are buying.

Often the politics of prices is called "conscious use of the law of value." This, in our opinion, is inaccurate. It seems to us, that it is more correct to talk about a conscious use of value categories. The law of value requires that prices correspond to value proportions or to their modified forms (for example, to production prices). The deviation of prices from values is connected with the action of the laws of demand and supply. These laws clearly manifest themselves on the free capitalist market and to a considerable degree also on the socialist collective farm market. The socialist state influences the formation of prices on this market by organized state and cooperative purchases and by sales of commodities with firm, state prices. But this does not change the action of the above-mentioned laws.

The case is different with consumers' goods sold in state and cooperative trading. The prices of these products are stable. They do not fluctuate daily under the influence of supply and demand. However, socialist, planned prices also take into account supply and demand. A socialist society does not need the spontaneous capitalist signal system for disparities arising between demand, supply and prices, with the aid of market price fluctuations. As trading enterprises take into account problems of supply and demand, the socialist planning organs receive firsthand information on the course of the sale of each product on a nation-wide and district-wide scale. This accounting shows which consumers' goods are scarce and which find no market, the relations between supply and effective demand at given prices and incomes of the population. All this makes it possible at the planning stage to provide for periodic price changes and to take into account needs and demand, while planning production. Contrary to conditions under capitalism, in a planned socialist economy prices and effective demand do not regulate production in a spontaneous and automatic manner. Our state enterprises in no way establish the composition of their production in direct dependence on which commodity has high prices and which has a low price. Obviously, under socialism, production adapts itself in some measure to demand, but production itself develops this. Prices periodically change in accordance with changing conditions. New prices form the demand and help achieve equilibrium on the market.

All this characterizes the peculiarities of the action of the law of value and the law of supply and demand and, at the same time, confirms the commodity character of this production. Everything said above about consumers' goods applies (if some peculiarities are taken into account) also to the whole mass of production in agriculture which enters the general economic cycle.

However, means of production produced and circulating within the state socialist sector have certain special characteristics. Here, no exchange of property takes place and this contradicts the usual concept of a commodity. The means of production go to the consumers in the course of planned material-technical supply. Some economists, citing these peculiarities of the means of production have their doubts about the commodity character of their production. If the material-technical supply was fully centralized and the management from above so firm that enterprises had no influence on this distribution and could not, with their own monetary means, influence this distribution, then it would really lose its commodity character. The socialist system of cost accounting, however, on the contrary, grants definite, fairly wide opportunities to enterprises to act as buyers and sellers. Prices of raw materials of other materials, of equipment and of other means of production, and the deviation of prices from values, play an extremely active part in

the organization of the circulation of the means of production, in the utilization of materials and in the use of technical equipment. And here, just as in the production and circulation of consumers' goods, money and prices are not merely symbols for labor costs, but an active instrument for the organization of commodity production and characteristic for it.

Prices influence economic processes in one direction or another; they act as real commodity prices and not merely as accounting prices. With the strengthening of cost accounting and the increased stimulating role of profit under socialism, the significance of value forms is heightened. The direction and intensity of the influence of prices on production depend on many factors, in part also on whether the state has a sufficient number of goods in sufficient variety, so that enterprises can maneuver and choose the raw materials and equipment they need, while taking prices into account. When enterprises can buy more freely various kinds of raw materials and equipment, choosing what is most economically profitable for them, then the effective demand and the prices of the means of production exert a significant influence on the production and distribution of raw materials and equipment. But this also means that the given products have the attributes of commodities. The development of socialism, as is shown by the experience of strengthening cost accounting, leads to the reinforcement of these traits of the commodity character of the means of production.

Such basic means of production as large buildings, machines, etc. constitute a special case. Here, the active role of prices is extremely limited. But this must sooner be attributed to the shortcomings of cost accounting than to the nature of these products under socialism. The existing peculiarities and limitations do not change the general conclusion about the commodity character of the production of consumers' goods, as well as of the means of production under socialism.

What factors condition the need for commodity relations under socialism?

The commodity form of products can not merely be the consequence of the interchange of products, for such an interchange exists always where there is division of labor. It is hackneyed to state that division of labor and the interchange of activity connected with it are a precondition for the existence of commodity relations, but this does not explain the need for them. If the exchange ratios are somehow connected with the labor ratio, then accounting and acknowledgement of labor are necessary. Exchange here can be of a direct products-exchange character, without commodity relations. To explain the need for commodity production, we must find out why the exchanged products have cost, i.e., commodity, attributes and why the medium of exchange is a special commodity — money.

Some economists consider the decisive cause for the preservation of commodity production under socialism to lie in the existence of two forms of socialist property: general national and cooperative. Products produced in the state sector, according to this consensus of opinion, acquire a commodity character as a result of commodity circulation between the state and cooperative sectors. Such a point of view seems incorrect to us. Is not the building of socialism possible even in a country where there is no small, private agricultural economy and, thus, no need for collective farms! There is absolutely no foundation for the assumption that production relations and the character of exchange would be essentially different under such conditions from what they are today in the USSR and in other socialist countries. We cannot explain the commodity character of state socialist production merely by the existence of collective farm property. Collective farm products are commodities to a greater degree than goods produced in the state sector. The commodity character of collective farm products strengthens the commodity character of other products, but it cannot serve as the cause for the need for commodity production in the entire state-owned sector.

Commodity relations, just as other production relations, are determined by the level and the condition of the productive forces.

The level of development of the productive forces under socialism is lower than the level of their development in the higher stage of communism. At the socialist stage, the productive forces cannot ensure the fullest abundance of goods; they are even insufficient for labor to become an absolute, vital necessity for all members of society. Many characteristics of the socialist stage of the development of society are explained by the absence of a goods abundance, by the socialist character of labor and the level of culture; particularly the need for the socialist distribution of products according to toil, for the material stimulation of workers and for the strictest accounting and control by society of the measure of toil and of consumption. Accounting and stimulation will be preserved even under fully developed communism. But material stimulation and strict material control by special means — money — will become unnecessary in the higher stage of communism. When an abundance of goods will have been achieved, the need for material stimulation of the workers will disappear, as they will have the right to receive products according to need, independently of the product created by them.

Socialist society fundamentally represents a union of consciously collaborating producers, unified by public ownership of the means of production, by collective toil and common interests. But under socialism, while a goods abundance does not yet exist, i.e., while there is a disparity between the level of production and needs, there must inevitably exist a non-antagonistic contradiction between society as a whole (or the collective) and its individual members. This is expressed by the fact that the public interests can not fully and in all things correspond with the private, individual interests of the members of society. This contradiction is manifested in the relations of people in production. Consciously unified producers, with the aid of socialized means of production, produce a general national income. At the same time, the toilers, as members of society, produce by their toil a private income and their personal toil serves as a means of receiving a definite part of the social product created. The relative independence of individual socialist enterprises determines to a certain degree the special interests of the collectives of the enterprises as production units; on their activity depends the income of the collective and its members. The contradiction due to the dual character of the interests of the producers manifests itself concretely here as the non-antagonistic contradiction between the unity of state property and its organization into more or less independent enterprises. This constitutes one of the peculiarities of national property under socialism which distinguishes it from national property under communism.

Investigation of the contradictions we discussed shows that, even in the state-owned socialist sector of production, the immediately social character of toil is not yet fully developed. The contradiction between the individual member of society, the collective and society as a whole, is a real one; it is irremovable before the achievement of full abundance of goods and we must take it into account. The general acceptance of the primacy of the interests of the whole society does not mean that it is possible to ignore

private interests under socialism. It is possible not to take into account the exigencies of distribution according to toil, of cost accounting and the economic levers connected with it, as, for instance, premiums, etc. But the personal interest is not abolished by this. Under conditions of the above-mentioned contradictions, toil, accounted and acknowledged by society, inevitably becomes a means of accounting and exchange and has a stimulating active part to play. Concrete individual toil cannot have such a part. Toil, less effective than socially necessary, would then be considered to be of full value. Individual concrete labor costs must receive a social evaluation, must appear as average social toil, as abstract toil, constituting the substance of value. Money and prices are necessary as general value forms and a form of socially necessary toil which constitutes its foundation. Necessary also is the mechanism of the deviation of prices from cost, so as to ensure redistribution processes and definite ratios between income. Thus, labor contained in products not only is formally measured in units, similar to value categories, but also appears as labor creating value, while the exchanged products appear to have definite, actual commodity attributes.

In the above-mentioned contradictions, social interests are dominant, private interests are subject to them. Accordingly, under socialism, value categories can not be dominant; they must be under the control of society.

Pre-socialist commodities and money were based on the contradiction between the social character of production and the private character of the toil of the individual producers. The non-antagonistic contradiction which constitutes the cause for the commodity character of products under socialism is connected with the fact that an element of the private, personal, differing from the social, remains in the toil of individual producers. However, this element is preserved with this very substantial difference, that it has become a side-issue, subordinate to the underlying basic harmony of interests of the society as a whole and of its members. Only by recognizing this contradiction can we understand the reason for the commodity attributes of products under socialism, for the peculiarity that toil, while having an immediately social character, at the same time must be socially evaluated in an indirect manner, with the aid of value categories. Owing to this, we can understand also the fact that a toiler under socialism is connected with the means of production without commodity relations but, subsequently, as a consumer enters into commodity relations with society.

The method of resolving real contradictions usually consists in the appearance of special forms of movement, special categories, on the basis of which the society exists and develops under the conditions of these contradictions. In our case, these categories are commodity and value forms under centralized state leadership.

Planning leadership of the socialist state ensures the progressive role of value forms. Our economic policy serves national interests, struggles against harmful manifestations of individual interests and strives to bring private interests into accord with social interests. For this purpose particularly, such economic levers as value categories are used. Their correct use helps to resolve contradictions between social and private interests. Such is the social-historical function of the commodity character of socialist production which explains its objective necessity. At the same time this function also shows ways of using commodity-money relations under socialism.

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We have stated above that prices can be and are used as an active factor, influencing the circulation of consumers' goods. An individual strives for the optimum satisfaction of his needs, according to his income and according to the price level. With the aid of prices, society can direct consumer demand, preserving free choice of goods, so that the combined consumption of the toilers will also be the best from the point of view of existing resources and the tasks of the state, which represent the interests of socialist society as a whole.

Stimulation with the aid of prices also has a place in the distribution of the objects and tools of labor. With a correct price policy, the society can direct distribution and consumption along the necessary lines, as soon as cost accounting accordingly interests enterprises materially in reducing production costs.

But the conscious use of value categories under socialism is not by any means exhausted by the purchase-sale and remuneration of labor. Prices express in money terms the tasks set by the plan, including such a decisive index as the output of production (in unchangeable or in current prices). Premium payments for fulfilling and overfulfilling the plan of production depend on this index. The whole of society and the collective of an enterprise, both are interested in the overfulfillment of the plans. Similarly, the interests of society, enterprises and individuals are unified with the introduction of material encouragements for the reduction of costs, for a better utilization of equipment, for speeding up the production processes, etc. In some, strictly defined, regions, a fuller coincidence of personal and social interests is ensured by a freer price formation (for example, as regards some seasonal agricultural products). In this way, with the help of value categories, a socialist society influences the immediate interests of the workers, so that these immediate interests coincide as much as possible with the interests of society.

A socialist economy is necessarily a centralized economy. This constitutes its important advantage. Economic activity is directed by a single economic plan. But the economic plan cannot embrace all details. The same is true for the plans for each enterprise and even for each department of the enterprise. Socialist plans are not prognosis plans, but directive plans. But it is impossible to issue directives on absolutely everything. Directives are not the only means for realizing the planned development of the socialist economy. Conscious and planned use of value categories makes it possible, on the one hand, to interest the workers directly in fulfilling the tasks established by the plan, and, on the other hand, to interest them directly in developing their creative initiative and independence in the direction pointed out by the plan — with regard to those details which the plan cannot regulate and where possible to choose the best solutions on the spot.

Finally, value categories are used in socialist accounting, without which it is impossible to take a single step in the rational organization of the economy. Here it is necessary to keep in mind that, when accounting is merely accounting and does not serve as the basis for stimulation, then cost indices are merely accounting symbols and not real categories.

Value categories, as they are a consequence of certain contradictions, do not abolish these, but incorporate them. Thus, a quota on the amount of production expressed in money terms stimulates the increase of production but, at the same time, it creates in certain cases anti-social tendencies towards infringing the planned variety of production in favor of more and more "profitable" kinds of products, etc. A quota on the amount of profit stimulates the increase of production and the reduction of costs, but sometimes gives rise to a tendency towards the deterioration of the quality of production (by the use of inferior materials) and, under some conditions, to a tendency for using less well qualified labor, etc. A great many such negative phenomena, connected with

value categories, are the result of the use of incorrect indices and incorrect prices. But value categories and, above all, prices, always conceal a contradiction connected with the fact that individual interests are subordinate to social toil. A price common to a sector of production does not fully take into account the peculiarities of the technical equipment and organization of labor in each individual enterprise and thus it plays a different role in different enterprises. Prices are changed periodically, but the cost which they are founded on changes constantly, while the cost of a unit of various kinds of production is variously lowered. A price which today is close to value or which corresponds to conditions which have appeared, will not be the same tomorrow. Consequently, in using value categories, a socialist society can attain only a relative optimum. These categories can further the achievement of social interests but they sometimes do not preclude undesirable effects on these categories which were not foreseen in the plan. Such elements are inevitable under socialism. As socialism grows and is transformed into communism, such failings will gradually be eliminated.

The progressive development of commodity production under socialism depends on the existence of conditions suitable for the use of commodity-money relations. One of these conditions is the assured existence of a sufficiently wide initiative on the part of the local economic organs, a consistent application of the Leninist principle of democratic centralism. In the course of many years the relative independence of local economic organs, especially of enterprises, was excessively limited in a number of socialist countries. Unnecessary centralization and, connected with this, disregard of the use of value forms in the final accounting, did not further the development of the economy according to the plan, but led to violations of the plan and to uneconomical management. When, in recent years, great initiative and independence was granted to local organs, this also meant that more demands were made for the skillful and wider utilization of value categories.

The discussion on the use of value categories in many countries has become the "hunting grounds" of the revisionists. Demands have appeared for giving free play to uncontrolled price formation and the mechanism of supply and demand, as they act under capitalism. In Hungary, such opinions were even preached by some teachers who had earlier correctly proved that the uncontrolled functioning of the law of value means anarchy and is accompanied by enormous social losses. They forgot not only what Lenin wrote on imperialism, but also that bourgeois scholars themselves discovered the imperfections of competition. Many Hungarian economists returned not merely to bourgeois political economy, but to its first steps, not only to Smith, but to the vulgar economist Bastiat. They began to consider any direct interference by the socialist state in commodity-money relations as the reason for shortcomings in the field of economic development. They asserted that the state apparatus can ensure the planned development only by indirect influence and that under the capitalist system of Adam Smith the law of costs operated by free price formation. The chase after profits, they said, managed the capitalist system quite well, so let us confine ourselves to the regulatory role of profits in production! And let the state manage the economy by a policy of percentages and other indirect instruments, like Keynes used to preach. It is our fault that we did not unmask these opinions, current in wide circles, in time.

The unmasking of these anti-scientific opinions is not particularly difficult. It is well known that completely free competition never existed even under capitalism; free competition even there grew into monopoly.

Yugoslav theoreticians, proclaiming the principles of building economies on the basis of artificially cultivated competition, inevitably come up against monopolistic manifestations at every step. The reactionary-utopian character of these opinions is constantly being revealed. The breaking up of production into units means perpetuation of the backwardness peculiar to a peasant economy. And it is doubtful whether an artificially implanted competition, which contradicts the objective laws of economic development, could be carried on for a long period.

"Let us create a free movement of prices," demand the persons who want to adapt the ideas of classical capitalism to the needs of a socialist economy. But the development of monopoly capitalism proves that the times of free prices are past, that capitalism can no longer exist without regulation, which is undertaken to a greater or lesser degree by the capitalist state. How is it possible to call for "free price formation" for an even higher degree of specialization, when all large means of production are in the hands of the proprietor, the state, which represents the whole of society? Let us make profit the only regulator of production, say those who favor a free market. But even contemporary capitalist monopolies do not manage production with the help of profit only. Monopolies manage enterprises by directives also, and by no means confide everything to such indices as profits and premiums. A socialist state even more must issue plan directives to its enterprises; this is necessary for ensuring the fullest consideration possible of the interests of society.

Profit is used in socialist enterprises as a generalizing index of management. It is based on the existing price system and reflects the growth of production, the reduction of costs and the change in other qualitative indices.

In the last two years in Hungary, the practice has been introduced in enterprises to set aside a part of the profit for the disposal of the collective of the enterprise and to use this for distribution among the workers of the enterprise. Now, profit is a directly stimulating influence. It is much smaller than the average capitalist profit, as the main part of surplus production is subject to centralization in public funds, in the interests of the socialist society. Further, the share of profits remaining in the enterprise belongs not to one man, or to a group of people, but to the whole collective of its producers. Finally, this part of the profits is not the only and not even the basic economic stimulus. The direct material interest of the workers is ensured first of all by their basic wages, while the leading cadres of the enterprise also receive premiums for fulfilling separate tasks of the plan.

Excessive participation in profits by the whole collective of workers under socialism would inevitably be limited by the accumulation fund. For this same reason, here, the automatic action of the profit mechanism can lead to a slowing down in the rate of accumulation.

The struggle against uncontrolled price formation and the chase after profits does not mean that it is advisable to centralize administration excessively. Unnecessary centralization entails the threat of bureaucratic distortions and mistakes. The shortcomings of previous forms of management in our country lay not in centralization itself, but in unnecessary centralization.

The problem is to find the best relationship between central leadership and the independence of enterprises and, at the same time, find the best use of value categories, which must not be too narrow, so as not to fetter the positive functions of commodity-money relations, and not too broad, so as not to unleash the market elements. With the correct

use of value categories, relatively broad local initiative is directed into the channel necessary to society. Such an optimum relationship must be accompanied by a fairly high degree of centralization, which corresponds to the essential nature of nationalized property.

The anti-scientific and reactionary character of revisionist demands for free price formation and uncontrolled action of the law of value consists in that the revisionists one-sidedly subordinate the contradictory unity of social and individual interests to private interests. If we transgress the necessary limits in decentralization and in the use of value mechanisms, then social property will come close to being group property. With unnecessary decentralization, socialized property will be transformed into group property. In our opinion, contemporary socialized property in Yugoslavia can almost be considered group instead of socialized property. Moreover, if, based on excessive decentralization, free play is given to the action of the laws of demand and supply, and plan directives are given a particularly limited role in the management of enterprises, if competition and value categories become the deciding factors, then even this group property loses its socialist character. All this leads to the degeneration of socialized property to a point where an excessively important role is played by special group interests. This in turn leads to the danger that private interests will triumph over the interests of society and that spontaneity will be transformed into complete anarchy. It is well known that cooperative property can be a socialist form of ownership only if the interests of society are supreme and if there is socialist ownership of the means of production.

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Discussion on an international scale is going on on the subject of value categories under socialism. Sometimes it seems as if the talk were merely about terminology. In reality, a struggle is in progress here for a Marxist-Leninist understanding of urgent problems of our times, a struggle with dogmatism and revisionism.

In the past, the widely held opinion that a socialist economy does not have commodity relations characterized the scholastic, unrealistic concept of socialism. Based on the fact that toil under socialism has an immediately social character, the defenders of these views ignored the complicated ripening process of the immediately social character of labor; they did not take into account that this process is still far from completed and that it contains certain contradictions. To this concept also corresponded the economic policy of unnecessary decentralization and excessive limiting of cost relations.

The other extreme is represented by the dangerous revisionist opinions which undermine the regular planned development of a socialist economy.

At the present time revisionist opinions are not usually openly defended in our country, but they are not yet completely overcome. The struggle against them cannot be unnecessary. This struggle is made much easier by the fact that in the socialist countries very much has already been done to abolish excessive centralization and to develop a correct system of material stimulization. The task for theory is to analyze the contemporary situation and work out ways for further improvement of economic management. It is necessary to eradicate revisionist distortions and also the survivals of some dogmatic concepts. In this way, the discussion under way will be of undoubted value, both for theory and for practice.

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A. Stanislavsky, V. Shtipelman:

On the Interrelation Between Effective Demand and Production Under Socialism

(Leningrad)

Under conditions of socialism, the production and distribution of goods is realized with the aid of commodity-money relations. The ratios of production of consumer goods and their consumption are revealed as the relation between prices of consumer goods and the demand of the population. This interrelation is one of the most important economic ratios. For this reason the question of understanding and defining it correctly is of great significance for theory and practice.

Some Soviet economists and philosophers assert that consumer demand should outstrip production and that this, so to speak, represents the law of development of a socialist society which must be taken into account in practical, current and long-term planning. This opinion has been subjected to severe criticism. However, it is still being reproduced on the pages of our press. Thus, N. V. Medvedev formulates his position on the interrelation of production and effective demand in the following manner: "Under conditions of socialism a law of economic development operates which is the opposite of the one operating under capitalism, where production has to contend with the narrowness of the market and is subject to periodical crises. Under capitalism, effective demand lags behind production, but under socialism the opposite is true." (1) F. K. Shorikov solves the problem in the same spirit: "... Capitalist society is characterized by a profound contradiction between production and consumption, as the narrow base of national consumption and the fall in effective demand of the toilers acts as a barrier, an unsurmountable obstacle in the way of the development of capitalist production; under socialism, however, the growth of the purchasing capacity of the toilers overtakes the growth of production, furthering by this the development of socialist production." (2) A. D. Shershunov and A. V. Shcheglov take the same view. (3) All the above-mentioned authors evaluate the fact that demand outstrips the production of consumer goods as a positive phenomenon. F. Shorikov writes in so many words that the lag of production behind the growth of the population's money income (which he identifies with consumption) furthers the development of production and constitutes the moving force of the development of society.

Some economists, citing the well-known formula of J. V. Stalin on the interrelation between the demand for and the production of consumer goods, assert that the growth of consumption (purchasing capacity) of the masses is overtaking the growth of production in our country at all times, driving it forward, i.e., serving as a stimulus for its development. With every step forward which our country takes in the development of socialist production, they say, the purchasing demand is satisfied, but a contradiction arises again insofar as the demand grows more quickly than the production of consumer goods. In this gain of demand over production they see the law of development of a socialist society.

The question of whether the more rapid growth of the population's money income in comparison with the growth of the production of consumer goods constitutes an objective law of development, or whether it is a disparity caused by preceding historical factors, is not basically analyzed to any

extent in the articles of the above-mentioned authors. The authors of these articles evaluate the gain of demand over production even as an advantage of socialism over capitalism. However, they do not base this assertion on an analysis of the facts. But the facts of daily reality show that inadequate satisfaction of the purchasing demand in the population for some important consumer goods is caused by difficulties which can be overcome in the course of the development of a socialist economy, but is not to be considered, by any means, as an internal law of development peculiar to a socialist economy.

According to Marxist-Leninist theory, production and not consumption plays the decisive role in the reproduction process. K. Marx, even in his early work, "The Poverty of Philosophy," showed that the determining role of production was shaped historically. In the first stages of the development of human society, production depended directly on consumption. But such a dependence has vanished long ago. In any case, it was possible only in that period when the means of production were very primitive and exchange took place in a limited framework. With the appearance of heavy industry, a similar dependence was bound to disappear, and production was bound to overtake social demand. The point is not that capitalist production, based on the exploitation of labor by capital, outstrips the purchasing demand of the proletariat and gives rise to crises and other upheavals. At the stage of production by heavy industry, development cannot take place without the advance of production over demand. Marx showed that "heavy industry, forced by the very nature of the tools it employs to produce continually in ever-growing quantities, cannot wait for demand. Production strides ahead of demand, supply takes demand by force." (4)

The reasons for the destructive character of the development of capitalist production lie not in heavy industry itself, but in its capitalist form. Marx and Engels come to the conclusion that it is necessary to destroy capitalism with its anarchy in production, the poverty of its masses and its crises of overproduction, if humanity is to make use of the progress of heavy industry.

Consumption is determined by production even under socialism. But, otherwise than under capitalism, consumption does not set limits to the growth of production, it is not antagonistic to it. Nevertheless, the production of consumer goods, not to mention the production of the means of production, must grow more rapidly than is immediately necessary at any given moment for individual and industrial consumption.

In reality, under capitalism as well as under socialism, the amount of the "dying" part of basic capital (basic means of production), which is therefore subject to replacement, is not the same in different years: if in one year it is larger than the average rate of its "mortality" ("just as with the mortality of people," remarks Marx), in the following year it will undoubtedly be correspondingly smaller. For this reason, even in simple reproduction, the production of basic capital must exceed the amount of its average annual wearing out. By itself, Marx showed, this surplus of production represents not a misfortune, but an advantage; under capitalistic production, however, it is a misfortune as, for the transfer of capital from one sector to another, a crisis is necessary in the first sector. If the capitalist system of production is abolished, the peculiarities of the reproduction of basic capital give rise to the need for a constant relative overproduction. "... On the one hand, a certain quantity of basic capital is produced in excess of what is immediately necessary; on the other hand, a reserve of raw material, etc. is created, which surpasses immediate annual needs (this applies in particular to basic means). This kind of overproduction is equivalent to control of society over the material means of its own reproduction." (5) Under conditions of quick tempi of extended reproduction, characteristic for a socialist economy, such production is one of the important conditions for the uninterrupted development of the economy.

The prevalent role of production in relation to consumption is expressed partly in the fact that, as a result of the development of production, ever-new consumer goods come into use, into the range of daily needs. It is generally known for example, that the development of the chemical industry gave rise to new needs for artificial materials: synthetic silk, wool, etc. Consequently, with the development of production, the character of consumption changes.

Under socialism, the determining role of production in relation to consumption is expressed much more tellingly than under capitalism, as production serves the interests of the whole of society and not those of a handful of exploiters. F. Engels wrote in 1871: "The excess production, over and above the immediate needs of society, instead of breeding poverty, will ensure the satisfaction of the needs of all members of society, will give rise to new needs and, at the same time, will create the means for the satisfaction of those needs." (6) With the growth of production, new consumer goods are created and, with this, the needs of the toilers will be expanded and will become more differentiated. But even consumption will not remain passive in relation to production; it conditions the regular renewal and repetition of production, creates new needs, which drive production forward. In creating new consumer goods which give rise to new material and cultural needs of the people, production, however, cannot satisfy them all at once. In this sense social demand outstrips production, advances ahead of it, and this the more rapidly, as production develops more and more.

Under conditions of socialism the productive forces develop with unheard-of speed, giving rise to the gigantic growth of the needs of the people, which systematically outstrip production. The satisfaction of social needs is the aim and moving force of the development of socialist production. The growth of the range of production leads to the growth of national consumption. On this basis new needs arise, which act as a stimulus for further development of production.

But the connection between production and consumption under socialism is not direct: between them are intervening links, such as distribution and commodity exchange. Consumption acts on production through distribution and exchange, the forms of which, in their turn, determine the character of production.

The most important condition for the uninterrupted growth and improvement of production at the stage of socialism is the personal, material interest of the toilers in the results of production. While an abundance of goods is not yet achieved and labor has not yet become a vital need for all members of society, it is the task of a socialist government to put to their fullest use all material stimuli for labor. The principle of material interest is realized in the distribution of personal income, in the organization of the management of enterprises (cost accounting), in the economic links between city and country and between industry and collective farms.

V. I. Lenin wrote that, in distribution, whatever furthers the growth of production and, through this, the rise in the living standard of the toilers, is just and correct. Such a distribution, furthering the steady increase in production, is possible only under such conditions when the growth of the production of consumer goods is slightly more rapid than

the growth of the money income of the population, and not the opposite. Under conditions of commodity production, the possibility for the toilers to obtain a certain amount of consumer goods or services is determined by the size of the effective demand, to which must correspond, according to the exigencies of the law of distribution according to toil, an equal amount in value of consumer goods and services.

This, in our opinion, refutes the opinions of the authors cited above, who maintained that the outstripping of production by demand constitutes a stimulating factor for the development of production and acts as its incentive and moving force. We must draw just the opposite conclusion: the advance of demand over production acts as an inhibiting factor preventing the full utilization of personal material interest of the toilers in the results of production which can be achieved only on the basis of a degree of advance of production of consumer goods over demand. In the editorial of the journal "Kommunist" it was correctly emphasized that, due to the insufficient supply of some consumer goods, "the socialist principle of distribution according to toil cannot be fully realized." (7)

The lag of production behind the demand of the toilers can be only a temporary phenomenon; it contradicts the demands of the objective economic laws of socialism. The volume of goods in the stores must correspond to the money income of the toilers, distributed according to toil. If enough goods do not exist to cover consumer demand, the equivalence in exchange is essentially disturbed, in fact, and this infringes upon the personal, material interest of the workers in the development of production. Production also is affected adversely if there are not enough goods to cover the effective demand. Under such conditions, stimuli are weakened which encourage broadening and improving the range of production and perfecting its quality. A situation where it is necessary that the rate of growth of the money incomes outstrip production makes for a permanent goods deficit and creates a concept of socialsim as a system with limited possibilities of production of consumer goods; in reality, however, socialism clears the way for an abundance of consumer goods. As for the formula: "consumption outstrips production," which we sometimes meet with in our press, it is theoretically absurd and, in practice, completely unfounded: consumption can never be higher than the volume of production.

Even at the dawn of the development of Soviet economics of the Communist Party, a struggle became necessary against Mensheviks of the type of Groman, Bazarov and others, who made an effort to defame socialism, denying its advantage over capitalism; they asserted that, if crises of overproduction are an organic attribute of capitalism, crises of underproduction of consumer goods are an organic attribute of a socialist economy; this would mean a permanent goods famine and disproportion between effective demand of the masses and production, which systematically lags behind it.

Why did some economists and philosophers uncritically take the incorrect view that the purchasing demand of the population must outstrip the growth of production at all times, driving it forward? In our opinion, this happened because they confused two different concepts: the growth of the needs of the masses and the growth of their purchasing power. The needs of the masses really are continually growing, creating unlimited possibilities for the development of socialist production. As for the lag of production behind demand, this fact has a content different in principle: what is meant here is a temporary disproportion caused by the concrete historical conditions of the development of socialist economics in the USSR.

By identifying two categories — the needs of the masses and their purchasing power — the above-mentioned economists and philosophers complicated the solution of the problem of what really is the moving force of the development of socialist production. A partial disproportion betwen production and purchasing demand, expressing temporary growth difficulties, cannot be considered a basic contradiction of socialist production, moving it forward. The moving force of the development of production under socialism is the unlimited growth of the needs of society.

Socialism presupposes a level of development of the productive forces such that a sufficient amount of consumer goods is assured and that members of society, receiving pay according to the quantity and quality of their toil, can buy with their income whatever they need in any quantity or quality. Socialism presupposes the complete supply of the fast-growing effective demand of the population. The correct interrelation between supply and demand, in our opinion, is when the volume of production of consumer goods outstrips to some extent the purchasing power of the population. In this case, the most favorable conditions are created for the satisfaction of the material and cultural needs of the whole of society and of each toiler, i.e., for the realization of the demands of the basic economic law of socialism, the law of distribution according to toil, and other laws. A more rapid growth of the production of consumer goods in relation to the purchasing demand is necessary for the introduction of new products into consumption, for the creation of reserves and stockpiles which assure the continuity of production and distribution, for improving trading methods, and for lowering prices.

Some economists are of the opinion that, if the cost of produced goods exceeds consumer demand, this can lead to overstocking and even almost to a "sales crisis." In any case, society will have to bear very considerable expenses, in their opinion. It is clear that a socialist society is insured against such phenomena. But it must and should nevertheless spend a certain amount so as to assure to the consumers a high quality of service, to create a wide variety of goods and a wide possibility of choice according to the demand and tastes of various groups of the population. Social expenses connected with this make up an insignificant part of the general cost of the goods produced.

A socialist society cannot do without a certain quantity of socially necessary expenses for these purposes, however ideally production is adapted to consumer demand and however carefully planning for a variety of goods is carried on. Here it is appropriate to draw a parallel with the accumulation of obsolescent means of production. Rapid technical progress makes for certain "losses," connected with the necessity for replacing obsolescent machines and equipment. But they are more than compensated by the increase of the volume of goods and by considerable reductions in prices. Also fully compensated are the social circulation reserves, due to the cost of the goods volume being somewhat higher than demand; this prevents slowing down of sales of the goods and repeated reevaluation of the goods, as styles become obsolete and new models are introduced, etc.

However, it would be incorrect to suppose that this advance of demand over production must increase continually. The rate of such advances must be determined depending on concrete conditions of the building of communism.

The question arises: If the contradiction between production and consumer demand which overtakes it does not flow from the essential character of a socialist way of production, how can it be explained that, in our country, for a number of years, such a contradiction has existed? A correct, scientifically well-founded answer to this question will

make it possible to discover also ways of overcoming the above-mentioned contradiction.

Concrete historical conditions of the construction of socialism in our country did not permit, for a long time, the achievement of complete accord between consumer demand and production of consumer goods. Enormous effort and sacrifices were required for overcoming, in a short period, and under conditions of capitalist encirclement, the technical-economic backwardness inherited from Tsarist Russia. During the period of industrialization of the country, the number of workers employed in heavy industry rose sharply. The wage fund outgrew the production of consumer goods. A natural consequence of these processes was a disparity between consumer demand and the possibility of satisfying it. The reason for the formation and temporary preservation of a certain disproportion between supply and effective demand lay, in great part, in the fact that agricultural production lagged behind the growing needs of the Soviet economy. The low level of agricultural production could not but hold back the rate of development of light industry and the food industry.

Objectively, the lag of agriculture and light industry was conditioned by the necessity of realizing the industrialization of the country in the shortest possible time so as to ensure the technical-economic independence of the first socialist stage in the world and the preparation of our Motherland for warding off imperialist aggression. "The greatest attention was paid to the solution of this primary economic problem," said Comrade N. S. Khrushchev at the September (1953) Plenum of the Central Committee of the Communist Party of the Soviet Union. "The basic forces and means of production were directed towards this goal. Our best cadres were occupied with industrialization. With us it was not possible to ensure the simultaneous development at high speed of heavy industry and agriculture and light industry as well."

Our nation for a long time consciously made sacrifices so as to abolish the centuries-old backwardness of the country in the shortest possible time, under conditions of capitalist encirclement, and to equip the whole economy with new, contemporary techniques. Today, our country has a mighty industry, a well developed collective farm production and qualified cadres of workers in all sectors of the economy. In the past few years, the development of agriculture and light industry has been greatly accelerated and a possibility now exists of shortly liquidating the partial disproportion between effective demand and the production of consumer goods.

The line of the party for further raising the national well-being means, first of all, the achievement of a level of development of the productive forces such as would permit the creation in the country of a fully adequate supply of consumer goods (food products, clothing, shoes, etc.), of living quarters, of establishments and objects of culture (clubs, cinemas, libraries, books, magazines, newspapers, etc.) and the full satisfaction of the effective demand of the population. When this is done, another step will have been taken towards the creation of an abundance of consumer goods. The second world war held back the development of our economy. In 1945, production of the most important kinds of production of heavy industry (oil, pig iron, steel) was on the 1931-1937 level, i.e., it was thrown far back. In the interests of the safety of our Motherland, it was necessary to overcome this lag as quickly as possible. It was necessary that heavy industry become even mightier than it was before the war. As is well known, our country accomplished this task successfully. Based on the growth of heavy industry, the rate of development of agriculture and light industry accelerated sharply. The Central Committee revealed the shortcomings of agriculture, removing from the path everything which hindered the development of state and collective farms. "The successful realization of the projected program for the increase in the production of agricultural products," said Comrade N. S. Khrushchev at the December (1958) Plenum of the Central Committee of the Communist Party of the Soviet Union, "was a great contribution to the economic development of the Soviet state, the strengthening of its might, and the rise of the living standard of the Soviet people."

Today, as a result of the successes in the development of the Soviet economy, achieved by firmly applying the Leninist line of the priority development of heavy industry and the liquidation of the long lag in agriculture, there exists a possibility for finally overcoming the disparity between consumer demand and the production of consumer goods. The contemporary level of production in the Soviet Union and the rate of its further development, projected by the seven-year plan, permit the creation of an adequate supply of basic consumer goods already in the current seven-year period.

Our country has set about solving a task never before attempted anywhere in the world: to assure a per capita output of food of all products required by scientifically established nutrition norms, so that the all-round harmonious development of healthy human beings will be made possible. The advantages of a socialist economic system today allow the solution of this problem in the not too distant future. Socialist agriculture now has a mighty, stable base for further even more rapid development, for the production of the quantity of products from plant and animal breeding which is necessary to our country (foodstuffs and raw materials for light industry). Of great significance are the successes achieved in the nation-wide movement for the solution of the task of catching up with and surpassing the USA in per capita milk, butter and meat production. In general volume of production of milk and butter, the Soviet Union has already overtaken the USA and has taken first place in the world, while for the production of wool, it is in second place (after Australia). We can now develop the light industry and the food industry more rapidly; in particular, we can produce more shoes and textiles, so as to produce a sufficient amount in the next seven-year period to satisfy the needs of the population for these goods. There is a great future for the increase of the production of consumer goods due to the steps taken by the party and the government for the development of the chemical industry.

Based on achievements in the development of heavy industry, the problem of living space is being successfully solved. Within the next ten years, it is planned to end finally the shortage of living quarters in the country. A radical improvement of living conditions for the population is foreseen. The production of furniture and various household goods will be greatly increased and great attention will be paid to increasing the production of goods for children and improving them.

All these measures ensure the necessary accord between production of consumer goods and consumer demand.

While considering the problem of the interrelation of demand and supply, we must distinguish between demand of the population for concrete goods and general effective demand. The general effective demand is determined by the general volume of money income which the toilers can potentially use for buying goods (excluding payment for services and savings). The population of the USSR spends more than 80% of its money income for the acquisition of goods in the shops. This is the so-called purchasing fund of the population. It

s planned and can be calculated by balancing the money income and the expenditures of the population. The demand or concrete consumer goods is another matter. It is determined by studying the condition of trade, data on the amount of sales of various products, etc.

There are two possible ways of averting a disparity which arises between the amount of money owned by the population and the amount of goods available for purchase: diverting the surplus money into payment for services and into the state credit system, or increasing the sale of goods. The payment for services does not, with us, divert a significant part of the money income of the toilers, as rent and communal and other services are cheap. The other channel for diverting the income of the population — state credit — plays a more important role.

Some economists, defending the thesis on the need for more rapid rates of growth of the effective demand in comparison with the production of consumer goods, hold that the money surplus formed by the population in this manner can be fully absorbed by the system of state savings banks and state credit. Deposits in the savings banks are considered by these economists as savings left to the population after they satisfy their current needs. In this way, in essence, the money surplus of the population is equated with normal savings. However, this is completely incorrect.

Soviet people strive for the fullest and most many-sided satisfaction of their material and cultural needs. They do not have to put money by for a "rainy day," for, under conditions of socialism, the most progressive social insurance and pension systems exist and there is no and cannot be any unemployment. The majority of savings are means specially accumulated for purchasing durable goods (machines, furniture, television sets, seasonal clothing, etc.). Such savings are current in character: while one part of the toilers are saving money, the other part already have an opportunity for acquiring durable goods with the money they accumulated. With simple reproduction, deposits and withdrawals in savings banks would balance out. To the extent that the production of relatively expensive durable goods grows continually, and they become accessible to ever increasing numbers of the toilers, the total sum of deposits in savings banks increases systematically.

However, the growth of deposits in savings banks reflects not only the increase of savings destined for the purchase of durable goods, but also the existence in the population of surplus money which cannot be spent because of the inadequate level of production and sale of some consumer goods. Undoubtedly, if at this moment, more passenger cars, refrigerators, building materials, pianos, pianinos, and other goods could be offered for sale, for which the demand is not yet fully satisfied, the sum of deposits would be greatly diminished. When consumer demand is not fully satisfied (i.e., if some products are scarce), the toilers will retain money in their hands, since they cannot buy the consumer goods they need. This money surplus cannot be identified with savings. From the economic point of view, the existence of such money residue in the hands of the population means that a part of the money in circulation is unnecessary insofar as no goods can be bought by it in state or cooperative stores, or in the cooperative market. It is possible to fully abolish the disproportion between consumer demand and the cost of produced consumer goods only by increasing markedly the production of goods necessary to the population. But even within the limits of the available goods supply it would be possible to reduce the existing goods deficit in many consumer goods if the circulation of goods was more carefully planned. In planning the circulation of goods, the "gross" approach still prevails, i.e., total consumer demand is balanced only in a general way with the amount of goods available. The range of supply and demand for each separate product or group of products however, is not given the necessary weight. As a result, surpluses in one kind of product and deficits in another arise in state and cooperative trade. The planning of the structure of goods circulation should proceed on the basis of profound study of consumer demand for each concrete kind of product. V. I. Lenin said in a speech at the Third All-Russian Food Conference, which emphasized the importance of taking into account, in the organization of trade, the peculiarities of demand and supply in each district of the country: "... Here it is necessary to take into account the difference in localities, in demand for the product, the difference in the equivalent... We need not old bureaucratic methods, but an account of trade conditions. We need precise knowledge of them, the ability to quickly take into account all changes." (8) By studying the consumer demand of the population for various kinds of products, trade organizations must actively influence the work of industry and must make its production program correspond to the needs of the population.

Consumer demand must and should be regulated by price manipulation, establishing prices which differ from the cost of the product on one side or the other. We cannot agree with those economists who hold that the price can and should coincide with the cost of production in every individual case. As the journal Voprosy Ekonomiki (9) correctly remarked, establishing prices this way would mean a refusal to exert any influence whatever on consumer demand on the part of society. The structure of production and consumer demand is extremely flexible. The socialist state is interested in many cases in increasing consumption by the population of certain goods, and in relatively reducing the consumption of others. The means for such action on demand under conditions of commodity production and circulation is the deviation of prices from cost.

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Literature Cited

(1) See Voprosy Filosofii, No. 4, 1956, p. 160.
(2) See Voprosy Filosofii, No. 1, 1958, p. 98.
(3) See Voprosy Filosofii, No. 11, 1958.
(4) K. Marx, F. Engels, Works, Volume 4, 1955, p. 101.
(5) K. Marx, Kapital, Volume II, 1954, pp. 469-470.
(6) K. Marx, F. Engels, Works, Volume 4, p. 334.
(7) Kommunist, No. 15, 1957, p. 30.
(8) V. I. Lenin, Works, Volume 32, p. 423.
(9) See editorial survey, "On the Law of Costs and Questions of Price Formation in the USSR," Voprosy Ekonomiki, No. 2, 1958.

M. Demchenko:

On Specialization and Cooperation in Industry

V. Ganshtak, P. Zhukov: Specialization and Cooperation in Industry (from the example of industry of the Sverdlovsk Region), Gospolitizdat, 1957, 152 pages.

One of the urgent problems of the further development of Soviet industry is specialization and cooperation in industry.

The control figures for the development of the economy of the USSR for the period 1959-1965 provide for great measures in specialization and cooperation in industrial production, in particular for a remarkable increase in specialized capacities for the production of castings, stampings and forgings. The specialization of working enterprises is to be improved and many of them are to be rebuilt and 75-80 new large specialized factories and departments are to be set up. The expansion of specialized capacities is also planned in the production of goods for mass use: normal reduction gears, metal working tools, components, electrodes, fittings, industrial fixtures and other articles; concentration of production in a smaller number of enterprises is provided for.

In the 1959-1965 period, concentration will be organized, as it is advisable, in the automobile and tractor industry, in agricultural machine building, in the heavy building industry and in highway construction; single-type production will be organized and centralized manufacture of unified and standardized aggregates, assemblies and assembly parts by mass serial production will be set up.

In the light of these enormous tasks, the literature generalizing the experience already accumulated by the economic councils and by individual enterprises in specialization and cooperation of production presents a definite interest.

The book which is reviewed here examines general and theoretical questions of the development of specialization and cooperation, the condition and tasks of the improvement of specialization and cooperation in the industry of the Sverdlovsk region and questions of the analysis of specialization and cooperation. Although the work is based on the materials of one region, problems of specialization and cooperation are analyzed from a national-economic point of view.

In the first part, "Specialization and Cooperation: The Economically Most Expedient Forms of Organization of Production," the authors show the spontaneity and contradiction of the process of specialization under capitalism, its extreme instability and imbalance. Unfortunately, they use obsolete data for this purpose (from the period 1929-1937). The book remarks that: "Under conditions of a socialist economic system there are incomparably more numerous possibilities for the development of specialization and mass production..." (page 5) But the authors do not show in their book what these possibilities consist of and how our experience in specialization differs, for example, from the American. But it should be emphasized that Soviet industry cannot copy the practice of the developed capitalist countries; we feel no need to raise the level of specialization so as to create a number of detailed and technologically specialized enterprises which is characteristic, for instance, for the USA, where the excessive development of highly specialized enterprises is conditioned by the competitive struggle of the monopolies. These set up new specialized enterprises dependent on them or subject to themselves independent small enterprises. The great growth in the number of enterprises with detail production in American industry is also caused by the — from the economic point of view unjustified — production of many different models of various machines and articles. The authors should point to the fact that in industry in the USA, in a number of cases, highly specialized enterprises are forced, during the period of cyclical fall in production, to produce production not corresponding to the type of specialization of the enterprise.

Production cooperation in socialist industry is defined in the book as: "a long-lasting or permanent working together of a group of enterprises in producing goods, organized on the basis of the state plan." (pp. 6-7) It seems to us that this definition should include the fact that it is possible for enterprises to organize their work in common on their own initiative so as to put their productive capacity to better use (when some enterprises have a surplus of productive capacity, others not enough).

It should also be emphasized that specialization of production in a socialist economy is inevitably accompanied by planned cooperation. The authors enumerate the basic shortcomings of specialization and cooperation revealed by the July (1955) Plenum of the Central Committee of the Communist Party of the Soviet Union, they cite examples, characteristic for the dispersal of production of identical types of machines; unfortunately, however, these examples are as a rule of an illustrative nature. The authors do not attempt to calculate the extent of the economic losses caused by incorrect specialization.

The second part of the book, "Basic Directions in the Development of Specialization and Forms of Specialization and Cooperation," examines the directions and forms of specialization and cooperation and their application in industry. The authors show that specialization in industry is developing along the following lines: "(1) Specialization of industrial sectors, (2) Specialization of industrial enterprises, (3) Specialization within enterprises of their individual parts (shops, departments, sections, working places)." (page 24)

This list cannot be considered complete as there is no mention in it of territorial division of labor (specialization of large economic districts) and of international division of labor, especially in the socialist camp (specialization of industry in the socialist countries).

The authors consider the basic preconditions for the rise of new branches of production to be the development and improvement of technique, the appearance of new kinds of production, the continuous increase of the variety and volume of production and the existence of a sufficiently large group of specialized enterprises. Unfortunately, the book does not contain numerical data characterizing these processes and there is no economic analysis of the formation of new sectors of production. In our opinion, these questions deserve a more profound investigation, as the specialization of industrial sectors is not merely a

quantitative, but also a qualitative process which we have to study in its development so as to be able to manage it better.

It seems to us that V. Ganshtak and P. Zhukov paid too little attention to questions of the specialization of industrial sectors. For example, they do not point out the peculiarities of the forms of specialization of individual sectors. However, these forms are extremely different from each other. Among industrial sectors we can distinguish a group of sectors specialized in the production of one object (many branches of machine building), a group of sectors specializing in detail production (production of spare parts and automobile parts, of agricultural machine parts, etc.), finally, a group of sectors specializing in technology (the cotton-ginning industry).

The authors state that specialization of enterprises may take the following forms: specialization in the production of an object, when an individual enterprise specializes in producing a limited number of types of production, technologically suited to each other; parts or assembly (aggregate) specialization, when an enterprise produces a limited quantity of parts or aggregates, technologically suited to each other; technological (stage) specialization, when an enterprise performs separate technological operations (processes). By rejecting a fourth form of specialization — the functional (when enterprises specialize in the performance of certain functions of production, for example, repair) — the authors mistakenly consider such enterprises to be specialized in the production of an object instead of in technological production. We consider it necessary to set up a classification which would include not only the object, parts and technological forms of specialization, but also specialization in auxiliary production.

The book points out that object specialization is widely used in machine building and in other branches of industry. Parts specialization takes place, apart from the machine building industry, also in the construction industry (plants for building parts), in the furniture and shoemaking industries, etc. Technological specialization is used in machine building (foundries, press forges and assembly plants), in metallurgy (plants with an incomplete technological cycle, for example, steel melting plants) and in construction. The authors could have cited many more examples if they had investigated the forms of specialization of the sectors. Thus, we can include plants of the cotton-ginning industry, plants for the primary processing of flax and bast, etc. in the list of plants with a technological specialization.

A shortcoming of the book is the fact that the authors did not discuss the question of the species and subspecies of specialization of enterprises, within these basic forms. But it is entirely obvious that we cannot relegate to one form of specialization — the specialization of production of one object — two such plants as the Uralmash plant (with an enormous variety in machines produced, a considerable part of which is produced on a single unit, small series basis) and the small cars plant in Moscow (specialized in mass production of one machine), if we want to clarify the characteristics of specialization in the production of one object under various conditions.

From our point of view, enterprises of object specialization can be subdivided into enterprises specialized for many sectors (serving several sectors) and enterprises specialized for a single sector, in a single function, a single production list and a single object. V. Ganshtak and P. Zhukov also did not mention the forms of parts specialization, although we can list under these enterprises with aggregate, assembly and parts specialization (with a single object of production, or many); neither did they mention the forms of technological specialization (production of castings, forgings, stampings, assembly in independent enterprises, etc.).

The forms of intra-plant specialization are mentioned in the book only as they apply to machine building. The authors consider the concentration of the production of homogeneous production in individual sections of plants, but say nothing about the technological specialization of the sections which, although less widespread, can still be met with in individual sections.

In discussing the basic forms of cooperation, the authors correctly emphasize the need for the greatest possible development of cooperation within districts, but they do not mention at the same time that in the interests of a rational distribution of productive forces it is necessary, while increasing cooperation within economic administrative districts, also to develop, as much as possible, inter-district production cooperation.

In the third part, "The Economic Significance of Specialization and Cooperation," conditions are analyzed which determine the ever-growing importance of specialization and cooperation in the development of industry.

Describing the advantages of specialization, V. Ganshtak and P. Zhukov remark that the most important one of these is the growth of labor productivity, which is conditioned by the improvement in the techniques and technology of production and by the improvement in the organization of labor in the specialization of production. The authors list among the advantages of specialization the growth of the workers' skills and improvement in work methods and movements; further, the abolition of or reduction in time losses for adjusting and tooling or retooling machines. However, the point of view of the authors that specialization acts favorably also on the quality of norm setting for labor and on the extension of the use of forms founded on techniques is debatable. It is a fact that the possibility of using norms based on techniques is at present determined not by the degree of specialization of production, but by the relation between the average wage and the rates of tariff and several other conditions.

In the fourth part, "Indices and Analysis of the State of Specialization and Cooperation," the authors set themselves the task of working out the methods of analysis of the state of specialization in individual enterprises, in the sectors of industry and in the separate districts of the country, so as to be able to evaluate the state of specialization and cooperation, determine the shortcomings in its organization and further the working out of measures for the further development of specialization and cooperation in production.

The system of indices for the characterization of specialization and cooperation laid down in the book reviewed here includes four groups of indices: district, sector, enterprise and department. These indices enable us to evaluate fundamentally correctly the level of the specialization of production in an economic district and in single sectors of industry. However, the book does not mention indices which would help to characterize the state of cooperation in an economic district and in a branch of industry.

The list of indices for specialization and cooperation by enterprise and by departments does not include specific indices for enterprises specialized in parts production or those specialized technologically, and for auxiliary production (production of standard tools, repairs, the manufacture of packing materials, etc.); it does not include indices for the characterization of the objects of cooperation and their ratio in the production of gross output. There are also no indices for the specialization of castings, forging, and auxiliary production on a district-wide or sector scale.

We can draw the conclusion that the classification of indices of specialization and cooperation given in the book reviewed here constitutes only the first step in working out a scientific system of indices (this is admitted by the authors themselves).

It must be mentioned that, recently, Gosplan of the USSR worked out a series of indices of specialization and cooperation which were included in the state plan and were taken into account by the Central Statistical Administration. These indices basically coincide with those cited in the book reviewed here but, at the same time, complete them.

In the fifth part, "The Contemporary State of and Tasks for the Improvement of Specialization and Cooperation in the Sverdlovsk Region," the authors, discussing the state of intra-plant specialization, cite data for a number of machine building plants which bear witness to the increase in the number of sections in plants specializing in production of one object. Unfortunately, some indices are omitted here, for instance the coefficient of serial production. This seems to mean that although the authors proposed an original system of indices of specialization, they did not fully succeed in applying it to the analysis of machine building plants.

The sixth part, "Some Questions of Specialization of Cooperation of Enterprises of Local, State and Cooperative Industry in the Sverdlovsk Region," contains a survey of the state of specialization and cooperation in the above-mentioned sectors and proposals for their improvement.

In the last part of the book, "An Example of an Analysis of Specialization and Cooperation of an Enterprise," an analysis is made of the state of specialization and cooperation in the Sverdlovsk mechanical plant for the production of tower and bridge cranes, " Glavstroimechanizatsia."

In the book by V. Ganshtak and P. Zhukov, the authors make wide use of the experience of the industrial enterprises of the Sverdlovsk and other regions; they describe correctly the basic tasks facing the economic councils for improving specialization and cooperation in industry.

A. Katzenelenbogen:

Problems of the Methodology of Determining the Economic Effectiveness of New Techniques

Proceedings of the Moscow Sergo Ordzhonikidze Engineering-Economic Institute, Part IX, "Problems of the Economic Effectiveness of New Techniques in Construction," Gosstroiizdat, 1958, 384 pages.

The fulfillment of the grandiose tasks for the development of the economy of the USSR for the period 1959-1965 provided for by the resolutions of the 21st Congress of the Communist Party of the Soviet Union requires an unprecedented upswing in construction. The volume of state capital investments in that period will grow by 1.2 times in comparison with the previous seven-year period and will be almost equal to the amount of capital investments in the national economy during all the years of existence of the Soviet power. With such an increase in the volume of construction, the industrialization of construction is of increasing importance, as is the question of how to economize and the speeding up of the tempo of construction work.

Comrade N. S. Khrushchev, in his report at the 21st Congress of the Communist Party of the Soviet Union, gave the most serious attention to the need for shortening the periods of construction in all branches of the economy and to the reduction of construction costs and the best and most efficient ways of economizing state funds.

With the present rate of construction, reduction in the estimated costs of construction-assembly work even by only 1% will economize more than one billion rubles. In the current seven-year period the cost of construction is to be reduced on the whole by not less than 6% and in the construction of living quarters by 14%. For the successful realization of the planned volume of construction it is necessary to ensure the steady growth of labor productivity and the greatest possible improvement of construction techniques.

In the light of the tasks facing construction, the scientific conferences devoted to problems of the improvement of construction are of great interest.

The work which is reviewed here is a collection of materials of a scientific conference organized by the Moscow Engineering-Economics Institute together with Gosstroi of the USSR and the scientific-technical society of the construction industry of the USSR, devoted to problems of the economic effectiveness of new techniques in construction.

In the articles contained in the collection, questions of the economic effectiveness of introducing new techniques in construction are analyzed, as well as the methodology of determining it and of creating organizational conditions which would promote the best utilization of techniques. This distinguishes the collection favorably from other books on questions of the effectiveness of new techniques in which, as a rule, very little attention is paid to the methodology of determining the economic effectiveness of new techniques.

The first question which arises in the analysis of the economic effectiveness of new techniques consists in determining which expenditures would, when reduced, help to reduce markedly the total labor expenses.

V. P. Lagutenko in the article: "Rational Decisions in the Construction of Buildings — the Basis of Economy in Construction," remarks that, in the estimated cost of civil construction in Moscow, about 60-65% of the total expenditures are earmarked for various kinds of materials and constructions; the fewer construction materials that are used, the greater will be the economy achieved. (page 48)

Naturally, the cost does not fully reflect the effectiveness of social labor. It is well known that not only economies in current expenses in an enterprise which produces a given article constitute indices of effectiveness, but economies in enterprises using this product as a means of production can also serve as such indices. Apart from this, we must take into account also the factor of expenses which occur only once, for these are not reflected in the cost of production. Thus, in our opinion, we should not, in determining the most important kinds of expenditures, use only the index of the cost of the produced output. It is necessary to take into account the basic kinds of expenses in the cost of production for the consumer (operation expenses) as well as in capital outlays (basic and working capital). An engineer planning a new project must strive to reduce the costs for the consumer, the cost of the produced output and the expenses which occur only once.

The question of determining which expenses are basic is closely connected primarily with technical progress as the decisive means of achieving the planned reduction in expenditures. As applied to construction, technical progress, in our opinion, means:

(a) Improvement of the construction of buildings, structures, etc.,

(b) Use of new basic and auxiliary materials (mixed reinforced concrete, hollow brick, quick-drying cement, etc.),

(c) Use of progressive technological processes (for example, thickening reinforced concrete by electrovibration), and,

(d) Introduction of new labor tools (multiscoop excavators, excavation machines, etc.).

All these ways of technological progress, closely linked with each other, will ensure the further extensive industrialization of construction, the transformation of construction into a mechanized process of assembling and putting up buildings and structures from blocks, parts and sub-parts, manufactured in plants. The basic precondition, the starting point for the solution of the problem at present, is the correct choice for the construction of buildings and structures.

Unfortunately, B. S. Weinstein and V. G. Kievsky, in the article: "Problems of the Method of Determining the Economic Effectiveness of the Introduction of New Techniques in Construction," while discussing ways of technical progress, do not mention the improvement of the construction of buildings and structures (the product of labor in construction). However, the solution of this problem is extremely important for the reduction of costs in construction as, on the one hand, a contemporary construction project is a complicated composite of engineering problems and, on the other hand, there are great possibilities in the choice of various materials, technological methods and tools for construction work or even in the creation of new means of production corresponding to the requirements of building the construction project.

It is not by accident that the greater part of the articles of the collection are devoted to questions of construction of building projects. In particular, the importance of improving the construction of buildings so as to reduce costs for one square meter of living space in the planned type of house is discussed by L. A. Gelbert in the article: "Technical-Economic Characteristics of Various Types of Apartment Houses and the Choice of the Most Rational Project Decisions." He emphasizes that the reduction of costs was: "achieved by radical changes in the planned construction of the house and apartment, by reducing the height of floors, the width of the staircase and, mainly, by reducing the subsidiary area of the apartment." (page 62)

The significance of the correct choice of construction for improving the technique of building is especially clear if we take, for example, the case of mass apartment house buildings; many articles are devoted to this. It is stated in the collection that at the present time many possibilities exist for determining the best dimensions for various parts of the house; this, in many cases, determines construction costs. For example, today it is possible to considerably improve calculations for the durability of the houses and, by this, to achieve the most economical way of construction. In this regard, extremely interesting data are cited in the article by L. I. Onishchik: "Lessening the Weight of Carrying Walls of Buildings as a Basic Way of Economizing Wall Materials." He writes that in old Moscow the average stated thickness of a wall in an eight floor house was 88 cm. In a house with eight floors built today the average thickness of an outer wall is 54.2 cm. Due to the use of new norms of planning for maximum effect within permissible limits and to the use of light perforated brick, the width of walls can be reduced to 44.5 cm. which constitutes 50% of the thickness of walls in Tsarist Russia for an eight-floor house.

The authors of the collection quite correctly link the choice of new building projects to the use of new materials, of new technological methods of construction, of construction machines and, also, of means for achieving the most economical way of producing materials. It is these factors which will help to create the best structures.

Enormous possibilities for changing the construction of a house result from the use of new materials, the use of mixed reinforced concrete, which is the foundation of contemporary building. In the collection, questions are raised as to the technical-economic evaluation of new materials and the standardization of their dimensions, new construction for boilers, problems of increasing the productivity of cranes in the assembly of large panelled buildings, etc. Unfortunately not reflected are data on the effectiveness of using plastics, the newest and most valuable construction materials.

In the collection, questions of the introduction of new techniques in construction and in the production of construction materials are discussed. Complex analysis of the effectiveness of introducing new techniques and organization of production in construction and in the industry producing construction materials helps in bringing out more precisely the possibilities for the development of construction.

It is regrettable that problems of the effectiveness of introducing new techniques in the production of construction materials are discussed only in one article: "Economic Effectiveness of the Introduction of Line Production of Reinforced Concrete (from the experience of Moscow plants)," by D. M. Chudnovsky. This article gives an interesting classification of line production. We must agree with the author that line production can be called that even if the manufactured part remains immobile, if the machines and mechanisms are mobile. However, the definition of line production given by D. Chudnovsky is imprecise. "...The term line production," writes the author, "must mean a form of organization of the production process where, based on the division of labor and the breakdown of the technological process, the simplest operations are undertaken in strictest succession, in a definite, previously laid down rhythm of work and by mechanization and automatization of the process of manufacturing and transporting the products." (page 206)

In this definition the conditions of organization of line production are confused with the advantages which are assured by such production. However, the essence of line production is not explained. The author asserts incorrectly that the division of labor and the breakdown of the technological process are indispensable for line production. Line production can be organized also around the concentration of operations and the maximum combination of various functions of the workers (for example, automatic line production in machine building). In our opinion, the characteristic of line production is that it ensures the uninterrupted production of the product. However, the basic shortcoming of the article does not lie in the definition of line production. The author did not prove his conclusion of principle that "assembly line production is the most universal and economically effective system of production." (page 216) At the same time, the article states that in a number of cases the work place system or the conveyor system of production are also effective. The advantages and disadvantages of the systems are not explained in the article. This is because the author, in the first place, does not discuss the connection between the possibility of obtaining effective constructions of reinforced concrete (including vacuum type) and the technology of their manufacture and, in the second place, does not analyze the costs for transporting products (or machines) in the process of production which, due to the great weight of the transported loads, play a substantial part in expenses which occur only once in the production of reinforced concrete products and in their cost.

Besides articles which analyze the technical and economic indices of various technical and organizational measures, the collection has a number of articles devoted to the methodology of calculating the effectiveness of introducing new techniques. Much of the material found in these articles will help concretize individual regulations laid down in the recommendations of the All-Union conference for determining the economic effectiveness of capital investments and new techniques in the economy of the USSR.

S. E. Kantorer, in the article: "Methods of Evaluating the Economic Effectiveness of New Construction Machines," quite correctly shows that a new machine, if it is based on progressive principles, ensures the reduction of the cost of production and of expenses for labor as well as, in the majority of bases, brings about a reduction in capital investments for the production of new machines. This is confirmed by the example of construction machines and follows the general tendency of technical progress, which reduces current expenses as well as those which occur only once. This is especially important from the point of view of the rational use of capital investments in construction. In the current seven-year period, capital investments for the development of the construction industry will be greatly increased and the construction organizations will receive a large quantity of new and improved machines, mechanisms and means of transportation.

Of great interest is the author's statement with regard to determining the prices of machines in juxtaposition with the cost of operations performed by a new and "standard" machine. As machine amortization constitutes a relatively large proportion of the cost of construction operations, while prices of machines are substantially reduced every year, the cost of operations, using the same machines produced in different years, can fluctuate from 10-20%. The author writes that, insofar as the amortization deductions calculated according to prices on January 1, 1952 are included in the estimated cost of machine replacement adopted for calculating the cost of operations, the cost of some operations are artificially inflated on an average by 8%. For a correct comparison of the cost of operations performed by various machines, the author proposes: "In all cases, amortization costs should be calculated from the actual prices of the machines." (page 262)

Comrade Kantorer considers a differentiated approach necessary for the evaluation of a new machine depending on the character of its connection with other machines. In particular, if a new machine can ensure greater productivity than other machines working alongside of it, the real effectiveness of the new machine must be taken into account in connection with the conditions of work with the given machines forming the "complex." However, at the same time, the possible economic effect must be calculated of conditions when new types of the machines completing the set are produced, the use of which will permit full use of the productivity of the new machine. (page 267)

We can evaluate positively the effort of the author to work out simplified methods for revealing the economic effectiveness of a new machine on the basis of natural indices in the pre-planning stage, when an answer in principle must be given on whether it is possible to plan it. The author maintains that: "if a new machine ensures a high productivity in comparison with an old one and, at the same time, gives a lesser sum for the specific indices as to the weight of the machine, the engine power, the cost in energy and others, it is possible to assume that the cost of a unit of production in a mechanized process with the use of the new machine will also be lower and that labor costs in the delivery of the machine, its assembly, disassembly and other preparatory operations to a unit of production will also be smaller." (page 260)

It is necessary to say that this method of determining the effectiveness of planned machines must be used with great caution. The above-mentioned interrelations, as far as they are not determined quantitatively, can not reveal the order of priorities in planning. Possibly there are variants of other machines which, other circumstances being equal, give a great effect and these should be planned as first priority.

A number of authors of the articles of the collection reviewed here start from the fact that one cannot have a basic common index which characterizes the effectiveness of new techniques. For example, Comrade Kantorer writes: "We can not evaluate the economic effectiveness of new machines on the basis of a common universal index, as not one of the existing indices reflects fully and sufficiently correctly the effect which is ensured by the introduction of the new technique." (page 254) Comrades Weinstein and Kievsky, rejecting the common index of effectiveness, base their view on the fact that efforts to establish such an index have been unsuccessful. But this happened, in our opinion, because such a relatively particular index as the cost of construction-assembly operations or the productivity of labor in construction-assembly operations, for instance, was chosen as a basic common index.

In reality, today, economic indices characterizing various aspects of social costs for the production of a product have substantial shortcomings; there is no profound, scientifically worked out system of evaluation of production.

However, with all the shortcomings of such economic indices as cost, price, and others, it is still possible to choose a common index of the effectiveness of capital investments. In our opinion, it permits the correct evaluation of the effectiveness of various measures. It is true, insofar as many qualitative factors connected with the determination of the effectiveness of new techniques do not yet have qualitative evaluations (scarcity of materials, easing of people's toil, etc.), they can make conclusions, based on a common index of effectiveness, which fluctuate in some cases. But still, the common index, other things being equal, gives an answer to the question on the expediency of introducing the new techniques. With many basic indices there is no possibility of determining the expediency of various variants.

In rejecting a basic common index of economic effectiveness, Comrades Usik, Weinstein, Kievsky and Kantorer write about the need for measuring the current expenses and those which occur only once against each other and consider the index reflecting the result of this operation to be one of the basic indices of economic effectiveness. In the article by V. V. Uspensky, however: "Indices of the Evaluation of the Economy Effected in Type Building Projects," the question of measuring current costs against costs which occur only once is completely avoided. In the articles of the collection, various points of view are represented on the question of whether only supplementary capital investments or all capital investments should be repaid. M. A. Usik, in the article: "A System of Basic Indices for the Economic Evaluation of New Techniques in Construction," contrary to the other authors of the collection, writes that all capital investments should be repaid as, from the social point of view in each of the cases considered, not merely the difference between capital investments, but all capital investments appear supplementary. This opinion should be considered attentively as, if in each case current expenses as well as capital investments are reduced, the need for an index of a period for repayment of supplementary capital

nvestments disappears. Not all cases of reduction of capital investments as well as costs which occur only once are dentical. For example, insofar as technical possibilities or the improvement of machines overtake the capacity for producing construction machines, it is important to establish definite priorities in planning new construction machines. However, even ratios of reductions in capital and current expenses for various machines are far from uniform. From this there follows that it is necessary to compare capital outlays with current costs and, obviously, to take into account the importance of the operations performed. This will permit, other things being equal, the establishing of an objective criterion for the evaluation of the economic effectiveness of the new technique.

Naturally, all these arguments on the possibility of choosing priorities for capital investments are justified only when it is possible not to make capital investments in other projects which give a lesser effect. This is why, at present, when we do not yet have a quantitative evaluation of the importance of various objects for investment, we must use the ndex of the period of repayment of supplementary capital nvestments for comparing various cases.

In the article by Comrade Kantorer, the period of repayment of supplementary capital investments is defined. At he same time, the author proposes to abolish in the economics of costs the difference between the amortization of ew and of old machines. This proposal is not new, other uthors have suggested it before; however, even if we agree hat it is necessary to use an index of the period of repayment of supplementary capital investments only, it is impossible to perform the proposed "operation." It is not nerely that amortization is repeated twice, in the numerator s well as in the denominator of the formula for the repayment of supplementary capital investments, as S. Kantorer vrites. The economic essence of the index of repayment of supplementary capital investments, as with every other index based on the interelation of current costs and those vhich occur only once, consists of the fact that it permits he commeasurement of expenses which occur at different imes, i.e., of expenses which occur only once with current economies, made in the following period, during the period of tilization of the object.

Comrades Weinstein, Kievsky and Kantorer not only deny he possibility of using one main index characterizing the conomic effectiveness of new techniques, they hold that part from the system of basic indices, there also exists a ystem of supplementary, auxiliary indices. But a great umber of basic and supplementary indices make the discovery of the effectiveness of new techniques more difficult, ot to mention the fact that money and real indices are only oosely connected. S. Kantorer tries to classify basic and upplementary indices which determine the effectiveness of ew machines. He divides all indices into economic and onstruction-utilization indices. However, among the economic indices there are also technical ones. In just such echnical indices the annual productivity of machines, the utlays in metal per machine and the outlay of electronergy and fuel are revealed (obviously, the fuel used by a nachine is meant).

In our opinion, while calculating the basic leading index, system of particular indices is inevitably needed. For exmple, we cannot calculate the capital investments necesary in basic means of production without knowing the productivity of machines; we cannot calculate the cost of production without knowing the real outlay for basic ingredints (energy, labor, etc.).

In this way, a single strict system of particular indices hould be set up. Based on this, a basic index is set up, but the particular indices should not be contrasted with the basic index and considered supplementary to it.

In the article of B. Weinstein and V. Kievsky an effort is made to determine the economic effectiveness of speeding up the periods of construction. This question, although it appears to be specific, is also one of general methodology. The effect of finishing the construction of a project ahead of time must be determined analogously with the speed-up of the production of any other product (machines, metal, etc.).

In the literature on the economic effectiveness of new techniques, this question has not as yet been solved. The solutions of this question proposed in the collection can also not be considered satisfactory. The authors point out two methods for the evaluation of the effectiveness of speeding up construction. According to the first method, the effectiveness is considered to be equal to the sum of amortization costs (for replacement), deducted from the total cost of the equipment put into action for the period between the planned and factual utilization. The possibility of applying such a method of determining the effectiveness of speeding up construction is supported by the authors with the argument that: "material and financial resources invested in unfinished construction do not bring any return and are, so to speak, 'frozen,' not effective for the state. When, however, the given project is put into use in the process of production, a part of the cost of basic means of production is transferred to production costs, participating in this way in the creation of a supplementary social product and in the increase of national income." (page 90)

However, in our opinion, the economy of amortization has no connection with the determination of the effectiveness of speeding up construction. Amortization as an economic category expresses the return of means for the replacement of the necessary tools of labor. However, the "freezing" of means in construction means that society does not receive, in addition, supplementary production. The authors of the article themselves see some shortcomings in this method and therefore they propose another one. But the substance of the second method remains obscure. They write that this method comes down to the determination of "the cost of production of an enterprise which is produced in the period between the planned and the actual period of utilization of this production." (page 91) At the same time, they assert that by this method the cost of material resources spent in the process of production is calculated from the cost of supplementary production obtained by putting it into use ahead of time. (page 90)

The speeding up of the periods of construction is nothing else but the corresponding change of working capital, on the one hand, and, on the other, the obtaining of a supplementary quantity of production which ensures, moreover, an additional economy in its utilization (as regards final use of products, the quantitative determination of their effectiveness is at present often impossible). Along these lines, obviously, we must look for the criteria of the effectiveness of speeding up construction periods.

The problems discussed above, connected with the commeasuring of current costs and those expenses which occur only once, are of great practical importance. Unfortunately, in the articles devoted to an analysis of concrete questions of the economic effectiveness of various technical decisions, there is no comparison of current costs with expenses which occur only once, particularly when, in one of the variants, great economies in current expenses are achieved at the expense of a certain increase in the amount of the expenses which occur only once.

At the same time, even in the articles devoted to the

methodology of determining the effectiveness of new techniques, a number of important methodological questions are not solved; practice is awaiting an answer to these.

Thus, in the article by E. Ya. Vilensky: "The Effectiveness of the New Construction of Boilers," interesting factual material is brought out which needs to be theoretically generalized. In particular, Comrade Vilensky shows that when the new boiler "Universal-3" was put into operation, this led to a reduction in the cost of boiler production (calculated by 1 sq. m.) of 12 rubles, 36 kopecks. With an annual production of 405 thousand boilers this makes for an economy of more than 5 million rubles. The transition to the production of the new boilers was realized without any losses for the period of assimilation and also made it possible to increase the output of boilers with the existing equipment and production facilities by 20%, i.e., it made for the reduction of expenses which occur only once. At the same time, operational costs for the new boilers are reduced, primarily due to the reduction in fuel outlays, which makes for an economy of more than 15 million rubles. (pages 248-251)

The methodology of a general total calculation of all the above-mentioned ways of economizing is not discussed in the collection.

True, the article by Comrades Weinstein and Kievsky, among other supplementary indices, point out such a one as "total labor expenses in the sphere of construction and the sphere of production..." (page 88) However, the nature of such an index is not explained and the method of its application is not mentioned.

In a number of articles extremely important questions are raised in connection with the creation of organizational conditions for the best utilization of new techniques. This concerns particularly the establishment of plan indices for the evaluation of the activity of plants for the production of construction materials and transport organizations; these indices, if used, would inspire in all workers an interest in the reduction of costs of the final product — the construction project.

Meanwhile, as V. P. Lagutenko writes in his article, while evaluating the activity of plants producing wall materials "in cubic meters," any attenuation of the construction reduces the volume of parts needed and, consequently, lowers the indices of the activity of the plant, injuring the material interests of the workers. This slows down the introduction of more effective construction. The evaluation of the labor of assembly-construction workers depending on the number of tons of construction laid down also acts to prevent their interest in the use of thin-walled constructions; when the weight of parts is reduced, the worker fulfills a lesser volume of worknorms, which will tell on his wages. The same thing applies to workers connected with the transportation of the loads.

Summing up, we can say that the collection under review contains a series of interesting views concerning the determination of the economic effectiveness of new techniques in construction. Factual data contained in the work characterize various aspects of the effectiveness of new techniques and give material for further scientific work in this field. Some proposals on the determination of the effectiveness of new techniques in construction can be put into practice even at the present time.

New Books on Economic Questions

P. M. Alampiev: Economic Districting in the USSR, Scientific-Research Institute of the Gosplan, USSR, Gosplanizdat, 1959, 263 pages.

This book is the first part of a work on the experience and contemporary problems of economic districting in the Soviet Union. It examines economic districting and its aspects, analyzes the scientific heritage of pre-revolutionary Russia in the field of economic districting, and discusses the history of Soviet economic districting in its most important stages.

In the second part of the work, the author plans to examine theoretical and practical problems of economic districting at the contemporary stage of the development of the Soviet economy.

M. Atlas: The Development of the State Bank of the USSR, Gosfinizdat, 1958, 384 pages.

In this work the activity of the State Bank of the USSR is examined from the moment of its organization to the present day. The book consists of two long parts. In the first part problems are discussed of the organization and activity of the State Bank of the USSR in the period of transition from capitalism to socialism (the period of reconstruction, the years of the socialist industrialization of the country, the years of the first and second five-year plans). In the second part the work of the State Bank of the USSR during the third five-year plan, the years of the Great Patriotic War and the postwar period (the fourth and fifth five-year plans) and also its work at the present time is considered.

Questions of the Economic Effectiveness of Capital Investments and New Techniques in Construction, Scientific-Research Institute of the Economics of Construction of the Academy of Construction and Architecture of the USSR, Gosstroiizdat, 1959, 254 pages.

The collection contains the following articles: "The Construction Program of the Long-Term Plan for the Development of the Economy of the USSR for the years 1959-1965 and the Tasks of Economic Science" by B. S. Ukhov, "Methods of Evaluating the Economic Effectiveness of New Techniques in Construction" by B. S. Weinstein, "The Time Factor in Construction and Reserves for the Reduction of the Volume of Unfinished Capital Investments" by B. M. Sokolov, "On Basic Indices of the Economic Effectiveness of Capital Investments" by G. I. Levin, "Determining the Economic Effectiveness of New Machines and the Variants of Mechanization in Construction" by S. E. Kantorer, "The Economic Effectiveness of Various Technological Schemes in the Production of Mixed Reinforced Concrete" by D. N. Zvorikin, "On Some Technical Peculiarities of the Development of the Production of Construction Materials" by Ya. A. Rekitar, and "Some Questions of the Economics of the Construction of Living Quarters" by A. A. Tomsen.

The book also contains a survey by S. V. Bashinsky: "On Results of the All-Union Scientific-Technical Conference on Problems of Determining the Economic Effectiveness of Capital Investments and New Techniques in the Economy of the USSR" and recommendations of the construction section of the above-mentioned conference on special aspects of determining the economic effectiveness of the introduction of new techniques in construction.

The Law of Costs and Its Role Under Socialism, Moscow M. V. Lomonosov State University, Gosplanizdat, 1959, 336 pages.

This collection contains reports and speeches by participants in a scientific conference which took place on April 20-23, 1958, in the Moscow M. V. Lomonosov State University, and was devoted to the law of costs and its

pplication under socialism. The book consists of three arts. In the first part questions on the need for commody production and the action of the law of costs under sialism are discussed. The second part analyzes the law f costs and the politics of prices under socialism. The ird part is devoted to the law of costs and problems of rofitableness and cost accounting under socialism.

. Kamenitser, V. Kontorovich, G. Pishchulin: Economics, rganization and Planning of an Industrial Enterprise, a extbook, Gospolitizdat, 1958, 504 pages.

In this handbook the structure of production of an indusrial enterprise, the organization of its management and the ontent and problems of planning in such an enterprise are xamined. The authors also analyze the internal production eserves, explain methods of discovering them and ways of eir utilization. Great attention is paid to problems of the rganization of basic production as well as to the organizaon and planning of the work of auxiliary departments and rganizations. Special chapters are devoted to planning the evelopment of technique in an enterprise, to working out a roduction program for the enterprise and its departments, questions of how to ensure steady and rhythmic work f the enterprise and the utilization of its productive apacity.

The book further examines questions of organizing labor, stablishing norms and planning the work, of organizing and lanning wages, of organizing and planning the utilization f material and energy resources, of setting up a plan for e cost of production and problems of establishing a finanial plan for the enterprise and a system of cost accounting ithin the plant.

. S. Konson: The Economic Effectiveness of New Techiques, Gospolitizdat, 1958, 391 pages.

This book is intended for engineering-technical personnel f industrial enterprises, for workers in planning and ecomic organs, planning and scientific-research institutes, nd for teachers and students of higher educational estabshments.

The work consists of three parts. The first part exames problems and general criteria for the determination of e economic effectiveness of the introduction of new techiques. The second part is devoted to methods of deterining the economic effectiveness of comparable variants f newly created technique. In the third part methods of alculating periods of service of machines and the ecomic effectiveness of modernizing and replacing old techique with new are explained.

. V. Riabushkin: Problems of Economic Statistics (an nalysis of the structure of the national economy and the nterrelation of its elements), Institute of Economics of the cademy of Sciences of the USSR, published by the Academy f Sciences, USSR, 1959, 376 pages.

The book consists of two large parts. In the first part uestions are discussed of the structure of sectors and the nterrelation of sectors in Soviet economic statistics (probems of classification of sectors of the economy and of labor, measuring inter-sectoral ratios in the economy, the evelopment of the basic situation of balance of the economy in Soviet statistics, basic questions of economic balance). In the second part the author gives a critical analysis of the classifications used in bourgeois statistics, and explains questions of measuring proportions and balance structures in capitalist countries.

Statistical Methodology of the Study of the Productivity of Labor in the Economy of the USSR, Academy of Sciences of the USSR Ministry of Higher Education, USSR Council of Ministers' Central Statistical Administration, Gosstatizdat, 1958, 383 pages.

This book is a collection of materials on the work of the scientific conference on the statistical methodology of the study of the productivity of labor in the economy of the USSR which took place in Moscow at the end of 1956.

The collection publishes the reports of the plenary session of the conference and discussions on them as well as materials on sessions of sections of the conference: a section on statistics of the productivity of labor in industry and in construction, a section on statistics of the productivity of labor in agriculture, a section on the statistics of the productivity of labor in trade, public eating places and in transport. At the end of the collection, the proposals of the conference are published.

Finances of the USSR, a textbook for financial-technical institutes and faculties, Gosfinizdat, 1958, 391 pages.

The handbook is prepared by a group of authors of the Moscow Finance Institute under the leadership of D. A. Allakhverdian and N. N. Lyubimov. The book consists of eight parts.

The first part examines the substance and functions of Soviet finances and their role in socialist reproduction. The second part discusses the history of the development of Soviet finances in the period of transition from capitalism to socialism and under socialism. The third part is devoted to the finances of socialist enterprises and of sectors of the economy. The following parts discuss problems of state income, expenses, credit, insurance and budget questions. The book ends with an explanation of financial control and management.

Economic Competition Between the USSR and the USA, a critique of the views of American bourgeois economists. Scientific-Research Institute of Economics of Gosplan USSR, Gosplanizdat, 1959, 242 pages.

This book is written by a group of authors. They examine the course and the future of the economic competition between the USSR and the USA. The authors pay most attention to the following basic problems: the aims of the production of material goods and the ways of attaining them in the USSR and the USA, the rate of the economic development of the Soviet Union and the United States of America, the relation between the volume of industrial and agricultural production in the competing countries, technical progress in industry in the USSR and the USA, the training of engineers, technicians and scientists in these countries, the movement of the living standards on the USSR and the USA, and the outlook for the solution of its basic economic tasks by the Soviet Union.

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V. Udovenko:

The Economic Upswing of the Eastern Districts of the USSR, 1959-1965

The effectiveness of the development of socialist production in our country with its boundless territory and enormous diversity of natural and economic conditions, is largely determined by the nature of the distribution of production and by the purposeful utilization of natural, labor and economic resources of the individual districts of the country. The planning of the distribution of productive forces is based on the Leninist idea that it is necessary to bring industry closer to the sources of raw material and that the loss of labor should be reduced to a minimum during the shift from the processing of raw material to all the succeeding stages of the processing of semi-fabricates and the production of finished products.

The problem of the maximum saving of time in peaceful economic competition with capitalism is the cardinal problem of the current seven-year period. In solving this problem further improvement of the distribution of productive forces will play an important role. In considering the problem of the utilization of capital investments in the development of the national economy most effectively, with an eye to the factor of time, the 21st Congress pointed to the need for all-out utilization of the effective production capacities, especially in the branches of the processing industry, the utilization of possibilities related to the finishing, expansion and reconstruction of the existing enterprises, and the modernization of their equipment. Such utilization of capital investments will make it possible to increase the volume of production with the least losses in the already developed industrial districts and to raise the level of their complex development.

The further expansion of the effective capacities of the different branches of industry is harmoniously combined in the seven-year plan with the drawing of the richest natural resources, mainly of the Eastern districts of the country, into the economic turnover and the organization of new industrial centers on this base. In 1959-1965, more than 40% of all capital investments will go into the national economy of the Urals, Siberia, the Far East, Kazakhstan and the republics of Central Asia. The size of capital investments during the first seven years in the Kazakh Republic alone will almost double (in comparable prices) the capital investments in the national economy of the USSR during the first five-year plan. The size of the capital investments in the national economy of Kazakhstan and the republics of Central Asia in 1959-1965 will increase in comparison with the preceding seven-year period 2.3-2.6 times, it will increase 2.1 times in Western Siberia, and 2.7 times in Eastern Siberia, where as capital investments in the USSR will increase by 80% on an average. The Eastern districts are noted for the exceptional wealth and diversity of natural resources. In regard to the reserves of coal, iron ore, non-ferrous and rare metals, chemical raw material and hydroenergy, the forests of Siberia and the Far East have a world importance. On the territory of East Siberia are concentrated about one-third of the world reserves of coal, about one-tenth of the world resources of water energy, about half of the forest riches of the Soviet Union and considerable reserves of gold, tin, molybdenum, wolfram, nickel, copper, lead and nepheline. The diamond deposits of Yakutia are of great importance.

Most of the deposits of mineral resources of the Eastern districts are marked by favorable geological conditions making open-pit mining possible.

The 20th Party Congress took up the problem of organizing the third powerful metallurgical USSR base in the East, with a production of 15-20 million tons of pig iron per year, which will exceed the present level of pig iron smelting in such highly developed countries as England, France and Japan, and corresponds approximately to the smelting of pig iron in the FGR. The iron ore base of the Eastern districts is exceptionally rich. It is sufficient to name the world famous deposits of iron ore in Kazakhstan (Sokolovsk, Sarbaysk, Ayatsk, Lisakovsk, Kacharsk in Kustanai oblast, Atasuiysk in Karaganda oblast, Atansorsk in Kokchetav oblast), in the South of Krasnoyarsk Krai (the Angara-Pitsk iron ore basin, the Abakansk group of deposits in the Khakass oblast), in Irkutsk oblast (the Angara-Ilimsk iron ore basin), in the south of Yakutia (the South-Aldan iron ore basin), in Chita oblast (Berezovo deposits). The raw material base under exploitation is sufficient to make it possible to organize a number of large metallurgical plants in Siberia and Kazakhstan with a combined capacity of up to 60 to 70 million tons of pig ion per year.

The basic trends of the development of the productive forces of the Eastern districts in the current seven-year period are determined by the drawing of the natural resources that lend themselves most effectively to exploitation, into the economic turnover. During the seven-year plan the construction of the country's third metallurgical base in the East will begin and considerable development will be achieved by non-ferrous metallurgy, the fuel and electric power industry and the chemical and forest industry.

In addition to the sharp rise in the capacities of the existing metallurgical enterprises of the East (for example, the smelting at the Kuznetsk group of metallurgical combines will increase 48%, the production of rolled iron will increase from 5.2 million to 8.5 million tons), the seven-year plan provides for the construction of two large metallurgical plants in Siberia (in Stalinsk and Taishet) and the Yermakov metal-smelting plant in Kazakhstan.

In 1964 the construction of the Karaganda metallurgical plant — "Kazakhstanskaya Magnitka" — will be concluded. The first blast furnace will produce pig iron as early as 1959. The exploitation of the iron ore deposits of Khakass oblast, especially in the Angara-Pitsk Basin, is an important factor in improving the flow of raw materials to the Kuznetsk metallurgical combine. These deposits will serve as a base for the West-Siberian plant. The reserves of the Angara-Pitsk Basin are 5 million tons. The iron ore deposits are so conveniently distributed as to make possible open-pit mining at a lesser capital outlay than in other deposit areas. The cost of the ores in this basin is very low and, according to available accounts, the pig iron which will be obtained from these ores in the West-Siberian plant will be the cheapest in the country.

The metal ore base of the Taishet plant is made up of the deposits of the Angara-Ilim Basin, primarily of the Korshun

nd Rudnogorsk mines. The Korshun deposits are esti-
nated at 400 million tons. At present, the construction of
n ore-concentration group of plans with a capacity for
andling tens of millions of tons of ore per year is in prog-
ess here. The Rudnogorsk deposits are in excess of 200
illion tons. The ores in this bed contain 46% of iron and
re fit for smelting without previous concentration.

The Karaganda metallurgical plant gets its raw materials
rom the nearby Atasuysk mines and from the deposits of
Kustanai oblast. During the seven-year plan the country's
argest ore-concentrating group of plants, the Sokolovsk-
arbaysk combine, with a productive capacity of 19 million
ons of iron ore per year, will begin operating. This com-
ine will supply the plants not only in Kazakhstan but also
n the Urals with ore prepared for smelting. The seven-
ear plan also provides for the construction of the Lisakov
nd Kachar ore-concentrating combines.

At the enterprises of ferrous metallurgy that are being
econstructed and built anew in the Eastern districts, the
reatest blast furnaces in the world with a capacity of 2,000
nd 2,286 cubic meters, Martin furnaces holding 500 and
nore tons, electric furnaces with a capacity of 80 and 180
ons, continuous automatic rolling mills producing 304 mil-
ion tons and other highly productive plants, in many ways
urpassing the best models of world metallurgical tech-
ology, are being constructed.

The favorable conditions surrounding the supplying of raw
naterials and fuel, the high level of technical equipment of
he metallurgical enterprises of the East being recon-
tructed and constructed anew, result in the high economic
ndicators of their work. It is known that in regard to eco-
omic effectiveness the Magnitogorsk combine holds first
lace among the metallurgical plants of the country. Ac-
ounts show that the cost of one ton of pig iron will be 5%
ess at the Karaganda plant and 10% less at the Taishet
lant than the cost of one ton of pig iron at the Magnitogorsk
ombine.

In the current seven-year period, the coal industry will
ndergo further development in the Eastern districts. Ap-
roximately 60% of the countrywide increase in the mining
f coal will fall to the districts of Siberia and Kazakhstan.
'he absolute increase in the mining of coal in these dis-
ricts in 1959-1965 will be more than 60 million tons, that
s, it will be in excess of the modern production of coal in
'rance or Japan.

In 1965, 230-235 million tons of coal will be mined in
iberia, Kazakhstan and the Far East, or considerably more
han in any capitalist country of Europe. The coal industry
n the Eastern districts will develop primarily because of
he mining of new deposits in the Kansk-Achinsk basin, as
ell as in the Itatsk, Tom-Usinsk, Azeysk and others. The
roduction of coal in the already exploited basins — the
Kuznetsk, Karaganda and Irkutsk-Cheremkhov — will be ex-
anded.

It is worthwhile developing the coal industry in the East
wing to the low cost of the coal mined here, this being due
o local mining and geological conditions favorable to its
xtraction.

For example, the cost of one ton of coal in the pits of the
Kansk-Achinsk basin is seven times less than in the Donbas
nd five times less than in the Kuzbas. At individual pits the
ost of coal is still lower. Thus, the cost of one ton of coal
t the Irsha-Borodin pit in 1958 was seven rubles, 30 ko-
ecks, i.e., more than eleven times less than in the Donbas,
nd 24 times less than in the Moscow basin. According to
he approved project of the development of the Irsha-Boro-
in pit, the cost of one ton of coal here will decline to four
ubles, 79 kopecks, i.e., it will decrease one and a half
times. Computations show that if powerful rotor excava-
tors are used at this pit the cost of one ton of coal may be
lowered to two rubles, 50 kopecks. It is possible to build
fifteen pits at the Kansk-Achinsk basin with a total capacity
of 134 million tons of coal a year. This is double the
present-day production of the Kuzbas, more than double the
total production of coal in France or Japan and approxi-
mately on a par with today's production of coal in the FGR.

In recent years, a number of the largest deposits of gas
have been opened to exploitation in Tyumen oblast, in the
Yakut ASSR, in the republics of Central Asia The Bukhara-
Khiva gas-bearing region has total reserves of gas amount-
ing to approximately 1.3 trillion cubic meters, which, trans-
posed to solid fuel, amounts to 2 billion tons of coal and
acquires especial importance. Of the newly opened gas de-
posits of this district the one with the greatest reserves is
the Gaslin (in the Bukhara district). It contains six produc-
tive levels with individual wells giving from 1.5 million up
to 3.5 million cubic meters of gas per day. The Mubarek
deposits in Kashka-Dariyn oblast are also acquiring coun-
trywide importance. The opening of the Bukhara-Khiva gas-
bearing region has put Uzbekistan into first place in the
USSR with respect to reserves of natural gas.

The production of gas in the Uzbek SSR in 1965 will ex-
ceed 18 billion cubic meters. This will not only satisfy the
gas needs of the republics of Central Asia but will also
make it possible to supply with gas Southern and Central
Urals and other districts. The construction of a number of
powerful gas mains has been decided on, going from Buk-
hara to Chelyabinsk (2100 km) and from Gazil to Sverdlovsk
(2300 km). Gas will be shipped to the Urals along these gas
mains starting in 1963. The construction of a gas main
from Djarkan to Bukhara to Samarkand to Tashkent (650
km) has already begun. The construction of gas mains be-
tween Mubarek-Samarkand-Tashkent-Chemkent-Djambul-
Frunze-Alma-Ata and Mubarek-Stalinabad is scheduled.

Cheap natural gas of the Bukhara-Khiva district and also
the deposits of Kirgizia and Turkmenia will be widely used
in the national economy of the Central Asiatic republics. A
number of the thermal electric power stations under con-
struction will be run by gas. It will also be used as raw
material by the chemical industry.

The increase in the production of gas will radically
change the composition of the fuel balance of the Central
Asiatic republics. If the share of coal in the composition of
the fuel balance of Uzbekistan in 1965 was approximately
76% and of gas merely 3%, then the use of gas by industry
and the population in 1965 will reach 60% and the relative
importance of coal will decline to 22%. As a result of the
change in the composition of the fuel balance, the Uzbek
SSR will save approximately 16 million tons of coal per
year.

The rise in the production of fuel in Eastern districts
will be the basis for the setting up of a great electric pow-
er base here. During the seven-year period, the production
of electric energy in the districts of Siberia and Kazakh-
stan will increase 3.3 times, while throughout the country
the average rise in the production of electric energy will be
2.1-2.2 times. The increase in the production of electric
energy in these districts over the seven-year period will
exceed the present-day production of electric energy in
France, Japan or Italy.

The development of electric energy in the Eastern dis-
tricts will occur primarily as a result of the construction
of large thermal electric power stations (with a capacity
of 1.2-2.4 million kilowatts). According to the existing
projects, the relative expenditures for one kilowatt of es-
tablished power at a large thermal electric energy station

do not exceed 800 rubles, that is, are less than half of the specific capital investments in the construction of hydroelectric stations. The construction of a large thermal electric station (before the introduction of the first plant unit) lasts from 2.5-3 years while the hydroelectric station, as a rule, lasts 7-10 years.

The thermal electric stations being planned and built in the Eastern districts rely on cheap local coal. This presupposes the low cost of electric energy produced by them. The cost of one kilowatt hour of electric energy at the Gorky GES amounts to approximately 2 kopecks, but at a thermal electric power station which is run on East-Siberian coal, it would be 1.5 to 2 kopecks. These computations are based on facts about the actual cost of coal. If we consider that the cost of one ton of coal at, for example, the Irsha-Borodin pits will be lowered to two rubles, 50 kopecks, then the cost of one kilowatt hour of electric energy at the powerful thermal electric power station planned for this region will drop from 1.39 kopecks to 0.8-0.9 kopecks. For comparison, we may point to the fact that the cost of one kilowatt hour of electric energy in the Ural districts amounts at the present time to approximately 10 kopecks.

During 1959-1965, such electric power stations as the Nazar GRES (with a capacity of 1.2 million kilowatts), the Tom-Usinsk (1.3 million kilowatts), the Troitsky (1.5 million kilowatts), the Belov and the Angrensk, will also be put into operation; moreover, the construction of the Irsha-Borodin, the Itatsk, the Azeysk and a number of other thermal electric stations will also be under way.

The construction of hydroelectric power stations in the Eastern districts is also highly effective. The cost of one kilowatt hour of electroenergy at the GES Angara-Yenisei cascade will be 3-4 times lower, and the relative capital investments 2 to 3 times lower than at the hydroelectric stations of the European USSR.

The construction of the Bratsk and Krasnoyarsk GES has already begun. The first of them, which has a capacity of 3.6 million kilowatt hours, will be put into operation in the current seven-year period. The construction of the Votkinsk (with a capacity of 1 million kilowatt hours), the Bukhtarminsk (with a capacity of 525,000 kilowatt hours) and a number of other GES, will be concluded. The Krasnoyarsk GES, with a capacity of 4.2 million kilowatt hours, will be the greatest hydroelectric station in the world. Its first units will be put into operation in 1964-1965. The relative capital investments of this hydroelectric station are on the same level as the most economical thermal stations, and the cost of the electric energy it produces (0.48 kopecks per one kilowatt hour) will be several times lower than the cost of electric energy at thermal stations that operate on coal obtained by the open-pit mining method.

Vast amounts of cheap electric energy produced in Eastern Siberia will not only serve as a base for the setting up of energy-consuming production here, but will also be used to relax the tension of the electric balance of districts that have a shortage of electric energy. Computations show that, for example, in the Urals the cost of one kilowatt hour of electric energy obtained along the high voltage line from the thermal stations of the Krasnoyarsk Krai will be only 3 kopecks. The seven-year plan provides for the construction of large electric power systems in the Eastern districts (Central Siberia, Kazakhstan, Central Asia). The most powerful of them will be the electric power system of Central Siberia.

An abundance of cheap electric energy will create favorable conditions for the development of electricity-consuming production — the metallurgy of aluminum, titanium, vanadium, magnesium and other non-ferrous and rare metals, the wood-pulp chemistry and chemical branches of industry, in particular, the production of plastics, artificial fibers, synthetic rubber and alcohol. The East also has the necessary raw-material base for the development of these products.

In many districts of Kazakhstan, Central Asia, the Urals, Siberia and the Far East, there are large deposits of non-ferrous metal ores. Non-ferrous metallurgy has already been considerably developed. During the period of the seven-year plan the capacities of the existing enterprises will be expanded, new deposits of ores of non-ferrous metals will be put under exploitation. Thus, in the Dzhezkazgan district a new pit is being built; it is the most powerful one of the mining enterprises of this mining district. The construction of the second concentrating factory is in progress in Dzhezkazgan. The construction of the greatest pit for extracting ore by the open-pit method has begun in this district at the Zyrianovsk polymetallic deposits. The so-called "small quarry" alone, when construction has been completed, will annually produce as much as all the Zyrianovsk mines produce today.

The exploitation of the recently opened Nikolayevsk copper mines in Eastern Kazakhstan will have great importance. Its reserves are second only to Dzhezkazgan. During the current seven-year period a large concentrating combine will be built at the site of the Nikolayevsk deposits.

New copper deposits are now being worked on in the Southern Urals. This will considerably raise the flow of local raw material to the copper smelting enterprises in the Ural area. The construction of a number of copper and lead and zinc enterprises is being planned in Uzbekistan.

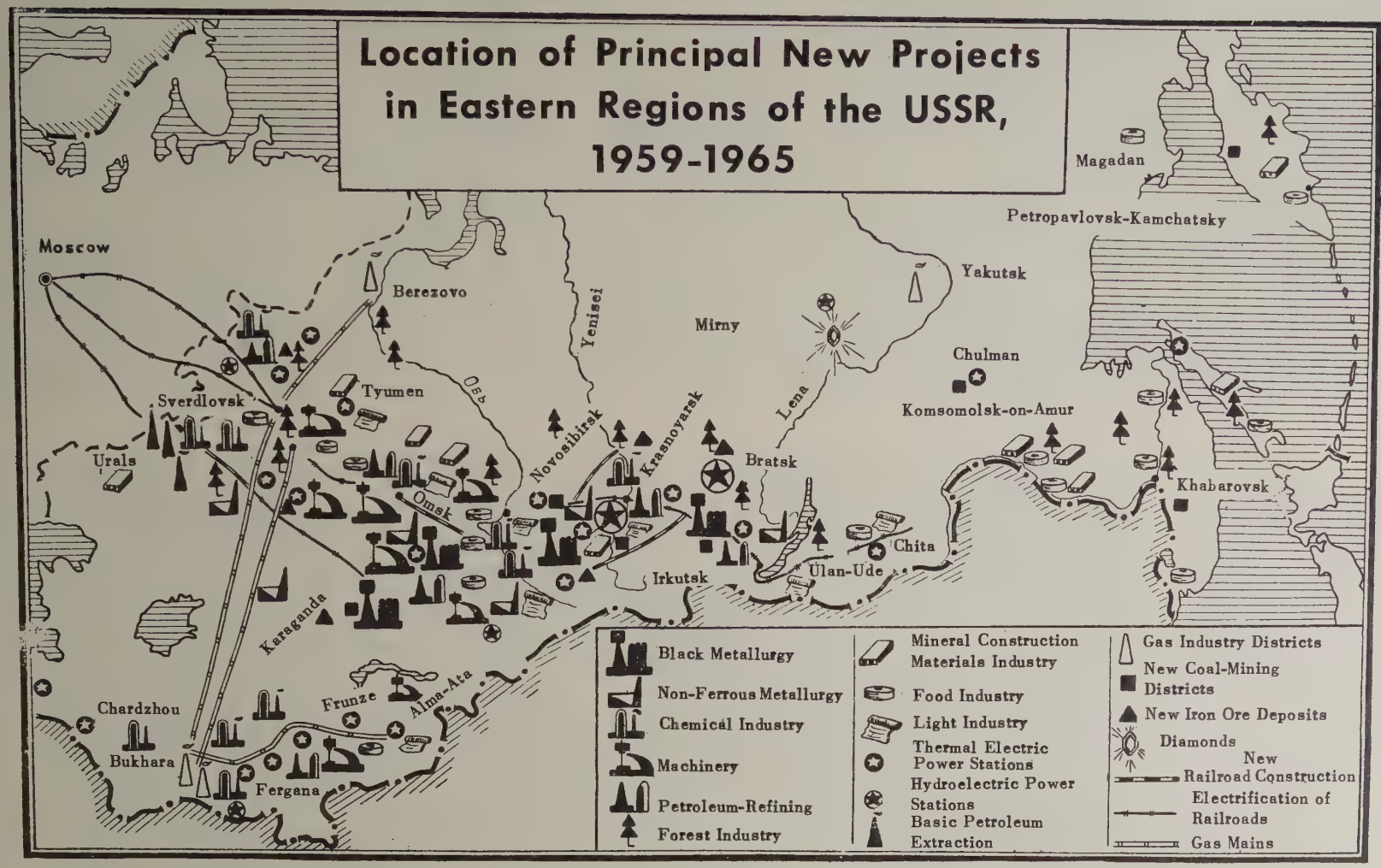
The rise in the production of aluminum to 2.8-3 times what it is today, envisaged by the seven-year plan, will be fulfilled primarily as a result of the development of the aluminum industry in the Eastern districts — Krasnoyarsk Krai, Irkutsk oblast and the northern part of Kazakhstan.

Work has been begun on the construction of the Turgai bauxite mines in the south of Kustanai oblast which will be the source of raw material for the Pavlodar aluminum plant now under construction.

The aluminum industry of Eastern Siberia relies on the rich local raw products base — the Ushursk nephelines. An important role in the further development of the production of nepheline will be played by the utilization of the new bauxite district opened in 1956 in the Kamenka River basin — a right tributary of Angara — and also by the utilization of the huge reserves of nepheline mines in the basin of the Tatarka River.

The development of a mighty industry in Krasnoyarsk Krai is envisaged on a base of the largest reserves of nepheline with the simultaneous acquisition of cheap cement and soda products. The thorough utilization of raw products and the cheapness of electric energy will ensure the low cost of production. The cost of Krasnoyarsk aluminum oxide will be 40% lower than that of aluminum oxide produced in the best plants of the country, while the cost of cement will be two to three times less than its cost at other Siberian cement plants; aluminum produced in Krasnoyarsk Krai will be 25% to 30% cheaper than aluminum now produced in the country.

The Eastern districts have at their disposal diverse raw products needed in the chemical industry. In Kazakhstan and the republics of Central Asia the production of superphosphates will increase sharply with the aid of phosphorites from Kara-Tau. The organization of "Kara Tau," a large mining and chemical combine, has been scheduled. During the seven-year period the extraction of ores will


Location of Principal New Projects in Eastern Regions of the USSR, 1959-1965
Moscow
Berezovo
Yenisei
Mirny
Yakutsk
Magadan
Petropavlovsk-Kamchatsky
Chulman
Komsomolsk-on-Amur
Khabarovsk
Sverdlovsk
Tyumen
Ob
Urals
Novosibirsk
Krasnoyarsk
Lena
Bratsk
Omsk
Chita
Ulan-Ude
Irkutsk
Karaganda
Frunze
Alma-Ata
Chardzhou
Bukhara
Fergana
Black Metallurgy
Non-Ferrous Metallurgy
Chemical Industry
Machinery
Petroleum-Refining
Forest Industry
Mineral Construction Materials Industry
Food Industry
Light Industry
Thermal Electric Power Stations
Hydroelectric Power Stations
Basic Petroleum Extraction
Gas Industry Districts
New Coal-Mining Districts
New Iron Ore Deposits
Diamonds
New Railroad Construction
Electrification of Railroads
Gas Mains

increase more than tenfold. The rise in the production of crude phosphorite will be the foundation of the superphosphate plant in Chardzhou and will make it possible to expand the superphosphate plant in Dzhambul. The phosphorite mines and the concentrating factory in the Bodanov phosphorite fields in Aktyubinsk oblast will be put into operation.

An important raw product for chemical production is coal and its products after reprocessing. The chemical industry in Kemerovo oblast and in Altai Krai will be developed with the aid of Kuznetsk coal. A network of enterprises of the rubber industry are being built in Barnaul, as well as a plant producing artificial fiber, one of the largest in the country. It will produce caprone and viscose fiber for textile enterprises, viscose and caprone cord fabric, cellophane and so forth.

An important role in the development of the chemical industry of Altai Krai belongs to the Kuchuksk sulphate combine now under construction, which will produce a varied assortment of chemical products.

The wood pulp industry will develop in Siberia at a rapid pace. The utilization of such raw products as natural gas and the gases of the petroleum refining plants will play an important role in the advance of the chemical industry of the Eastern districts. The completion of the construction of a petroleum pipeline from Bashkiria to Irkutsk and the setting up of petroleum refining plants in a number of districts in Siberia will create favorable conditions for the development of petroleum chemistry. Omsk will become a large center of the chemical industry. As early as 1959 a plant producing active carbon black, necessary for the rubber industry, will be put into operation here. In comparison with 1952-1958, the capital investments in the chemical industry of Omsk oblast will increase 5.4 times in 1959-1965.

In 1963 a large petroleum refining plant will be put into operation in Pavlodar. Tuymazinsk oil will be delivered here through the Omsk-Pavlodar oil pipeline, 220 kilometers long. The exploitation of the Pavlodar petroleum refining plant will create favorable conditions for developing the production of synthetic materials in this area.

The exploitation of the Bukhara-Khiva gas-bearing district will spark the development of the production of synthetic materials and nitrogen fertilizer in the Central Asiatic republics and in the districts linked to Bukhara by gas lines. The following data testify to the economic effectiveness of the utilization of natural gas and gas by-products of petroleum refining as raw material for the chemical industry: The cost of one ton of rubber, processed on gas, is 3,600 rubles — on alcohol, 6,435 rubles — on natural-gas ammonia, 490 rubles — on coke, 980 rubles — on gas alcohol, 2,234 rubles — and on raw food products, 3,935 rubles.

The seven-year plan envisages a rapid development of logging in the forested districts of Siberia and the Far East. The share of these districts in the lumber resources of the country is approximately four-fifths, but at the present time they make up only one-fourth of the All-Union deliveries of wood, a little more than one-fifth of the production of sawn lumber and less than one-tenth of paper and plywood. In the current seven-year period the procurement of lumber in Siberia and the Far East will sharply increase. Great work in putting under exploitation the new districts of lumber procurement will be carried out in Tyumen and Irkutsk oblasts and Krasnoyarsk and Khabarovsk Krais. This will serve as a base for the establishment of a number of large wood processing enterprises in the districts of Siberia and the Far East. The construction of Bratsk, Yurtinsk and Chunsk combines has begun in Irkutsk oblast. They will carry out the complex processing of wood: from the sawing of lumber to the production of paper and wood pulp. For example, the Bratsk complex will contain a number of lumber enterprises, a large wood sawing plant, plants for viscose cellulose, packing cardboard and so forth. The Amur cellulose and paper combine is being built in Khabarovsk Krai. It will produce viscose cellulose, packing cardboard, alcohol and other products. The annual consumption of wood in these combines is about 2 million cubic meters.

Moreover, four large housing combines will be put into operation. The construction of the Khabarovsk furniture factory will be completed, and a second furniture factory will be built. The amount of its production will be 50 million rubles a year.

To open new lumber districts approximately 2.7 thousand kilometers of railroads will be built during the seven-year period, mainly, in Siberia and the Far East.

During the seven-year plan, an important place in the economy of the Eastern districts will be taken by various branches of machine construction, primarily heavy machinery. The production of metallurgical and mining equipment will be organized and expanded, including cranes, drags, equipment for the aluminum and cement industry, and also energy and electrotechnical machinery. The machine industry in the East will develop at a rapid pace. If in the USSR, as a whole, the volume of production of the machinery industry and the metal-processing industry will increase approximately twofold during the seven-year period, then it will increase fourfold in Kazakhstan, 3.8 times in Amur oblast and Altai Krai, and more than twice in Kemerovo oblast, and so forth.

A number of large centers of the machinery industry will be established in the Kazakh SSR. The priority construction of the condenser plant in Ust-Kamenogorsk will be concluded. A large plant for the production of equipment for concentration factories will be put into operation in 1960. In Kokchetava, plants producing electro-heating and oxygen instruments will be opened. The following plants will also be put into operation: a combine plant in Pavlodar, a plant for elevator equipment in Akmolinsk, a cable producing plant in Taldy-Kurgan, an excavator producing plant in Kentau. The construction of a plant for rolling equipment will begin in Petropavlovsk.

It is planned to build enterprises producing internal combustion engines and high-voltage instruments, an automobile assembly plant, a plant for the production of spare parts for tractors and a number of other enterprises in the Novosibirsk oblast. Seven machinery enterprises will be organized in the Kuzbas, and six in Tyumen oblast, etc.

The development of machine construction in the Eastern districts depends not only on new construction but also on the expansion of the existing enterprises, their modernization and the renovation of the items in their output. At the machinery plants of the Kuzbas the amount of automatic and semi-automatic equipment will quadruple in seven years, and the amount of special and multi-operation instruments will increase more than seven times. The specialization of enterprises will be strengthened. The Kuznetsk machinery plant will specialize in producing mechanical hydraulic sinking machines. The Svobodnensk mechanical plant (Amur oblast) will specialize in producing spare automobile parts, the "Altaiselmash" Rubtsovsk plant will completely convert to the production of hinged tractor plows, and so forth. Systematic production specialization will make it possible to make the plants work at full capacity and will aid in increasing the output.

The monumental program of capital construction in the Eastern districts requires an accelerated development of the industry of construction materials — the production of

ement, reinforced concrete parts and details, slate, composition roofing, and window panes. The southern part of rasnoyarsk Krai will become a great center of the cement dustry. The production of cement in Uzbek SSR will increase approximately four times; a cement industry is beg organized in Tadzhikistan and other Eastern districts.

The development of light industry in the East will, to a rge extent, rely on increased production of artificial ber. The expansion of light industry in the Eastern dis-icts will be more rapid than the average expansion in the est of the country. For example, the gross output of the ght industry in Omsk oblast during 1959-1965 will increase 3.2 times — in Khabarovsk Krai, 6.4 times — in Krasoyarsk Krai, more than 5 times, and so forth, whereas the verage increase in the USSR will be 1.5 times. In Altai rai, the construction of the Barnaul cotton enterprises will e concluded and they will be put into operation. In Biisk, group of enterprises manufacturing silk fabrics from rtificial fiber will be built. In Barnaul, a hosiery factory nd a new leather plant will be built, and so forth.

The economic upswing of the Eastern districts is unthinkble unless the transport operations are improved. A great ole in the accelerated development of the production orces of Eastern districts will be played by the electrification of the Trans-Siberian line and also such lines as Mosow-Gorky-Sverdlovsk, Moscow-Kazan-Sverdlovsk, Karaanda-Magnitogorsk-Ufa. The seven-year plan provides r the completion of the construction of the South-Siberian nd Central-Siberia railroad lines, and also for a number new railroad lines in the districts of Kazakhstan and the rals. Putting into operation the Abakan-Taishet railroad, ow under construction, will make it possible to establish e most rational junction of the Bratsk-Taishet industrial enter with the Kuzbas. The Achinsk-Abalakovo railroad will ay an important part in the rise of the production forces the Angaro-Pitsk district which will eventually become iron ore base of ferrous metallurgy of the Kuzbas and rasnoyarsk Krai, and also a large district of the lumber, ood processing and cellulose and paper industry. The ulomzino-Irtish-Karasuk railroad will link up the virgind districts with Omsk.

Along with the new railroad lines the seven-year plan enages the construction of several thousand kilometers of econd tracks on already existing lines.

Supply line transport will receive great impetus in the ast (gas lines, oil and products, lines).

River transport is of great importance for the developent of the public economy of the Northern districts of beria. Shipping by the Yenisei steamships will increase ore than 2.2 times in 1965, whereas in the country as a hole the dimensions of river shipping will increase 1.6 mes.

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The fulfillment of the seven-year plan will substantially ange the economic map of the Eastern districts. New, werful industrial centers — the Kustanai, Pavlodarsk-kibastuzsk, Achinsk-Krasnoyarsk, Bratsk-Taishet and hers — will arise and develop. They will be the groundork of further economic advances in the Eastern part of the viet Union. In 1965 approximately one half of the All-ion production of coal, steel, cement, electric energy, d the shipping of wood, will fall to the share of the Eastern stricts. They will also produce 70% of aluminum and out nine-tenths of refined copper. The establishment of a rge grain base east of the Urals will be a most important ctor in the rational specialization of agricultural produc-n in the whole country.

The economic upsurge of the Eastern districts will play an important role in the establishment of the material and technical base of communism, in the resolution of the basic economic problem of the Soviet Union, to overtake and surpass the more developed capitalist countries in per capita production.

V. Shabunina:

The Reorganization of the Administration of the National Economy of the Bulgarian People's Republic

The present stage of socialist construction in the People's Republic of Bulgaria is characterized by a national movement in favor of the acceleration of the pace of economic development, of the early fulfillment of the goals of the third five-year plan (1958-1962) in order to strengthen the material-production base of socialism and establish conditions that would allow the country to effect the gradual transition from socialism to communism. The measures undertaken by the Bulgarian Communist Party and the government of the People's Republic of Bulgaria for the reorganization and improved management of the national economy are of great importance in the successful fulfillment of these tasks.

During the period of the people's democratic regime in Bulgaria, as a result of the implementation of the policy of socialist industrialization and the establishment of agricultural cooperatives, great successes have been achieved in the development of the productive forces of the country. From an economically backward, agrarian country, Bulgaria was transformed into an industrial agrarian country with an extensive agriculture consisting of mechanized cooperatives. The relative importance of the industry in the gross output of industry and agriculture rose from 24.8% in 1939 to 68.3% in 1957. In 1957, industry produced 49% of the national income of the country as against 24.3% in 1939. The size of gross industrial output in 1958 increased almost nine times in comparison with the prewar level. At the present time, Bulgaria has a modern industry. Its administrative and engineering and technical personnel have accumulated considerable experience in directing production.

The socialist reorganization of the economy resulted in the victory of socialist productive relations in all sphere of the national economy. The working masses of the country, headed by the working class, evince high intelligence and enthusiasm in the cause of socialist construction.

The achievements of socialist construction, the socio-economic changes which occurred in the country during the period of the popular regime, created the possibility for the improvement of the structure, the forms and methods of state and economic management which, during the period of transition from capitalism to socialism, played a good role but, subsequently, no longer served the fullest utilization of all the advantages of the socialist economic system. The unjustifiably large number of steps in the complicated system of administration, departmental disconnectedness, and excessive centralization led to the swelling of the ruling apparatus both in the center and on the spot, to the weakening of the direct ties between the organs of government and production, to duplication and bureaucratic methods of administration.

In recent years, in accord with the decree of the April (1956) Plenum of the CC of the BCP, a number of measures

have been implemented in Bulgaria for the improving of the administration, the planning and financing of the national economy and for the continued development of the principle of democratic centralism with a view to a more flexible combining of centralized planned management with the development of initiative and independence of the local organs and enterprises, of one-man management with the creative activity of the labor groups. In 1956, to liquidate excessive centralism, the Council of Ministers of the Republic considerably reduced the number of centrally established indicators of the plan. At the beginning of 1957 the reorganization of some of the ministries and departments took place. It was intended to simplify and make cheaper the administrative-governing apparatus. The rights and authority of the people's Soviets were expanded. A number of branches, enterprises and jobs of on-the-spot importance, which formerly were subordinate to the central organs, came under their jurisdiction.

Proceeding from the problems and conditions of the modern stage of socialist construction in the country, the expanded Plenum of the CC BCP, which took place in January 1959, outlined a number of essential measures for the reorganization and improvement of state and economic management which, after widespread discussion, were ratified by the National Assembly.

To ensure a more operative and concrete leadership, the system of administration of the national economy has been reorganized on a territorial principle. The new administrative-territorial division forms the base for thirty administrative-economic districts instead of the former thirteen districts and 117 precincts.

The average area of the territory of most of the districts is 3,000-5,000 square kilometers, and the size of the population is 200,000-300,000 persons. More than half of the districts have from 30-50 industrial enterprises and produce from 2% to 5% of the gross industrial output of the country.

District People's Soviets have been organized in the new administrative-economic districts. They fulfill both the functions of management of the entire economic life of the district and the administrative functions of the state government.

Centralization based on branches in the administrative-government area has been limited and superfluous intermediate links of the system of administration have been eliminated. Thus, a number of branch ministries and departments have been liquidated (ministries of heavy, light and food industry, electrification and the water economy, construction and construction materials, public services and utilities). Enterprises which formerly were under the jurisdiction of ministries and departments have been turned over to the District People's Soviets for direct management and control. The District People's Soviets and the executive committees have the right to issue decisions and orders which are binding on the enterprises subordinated to them (within their jurisdictional limits). In their activity the District People's Soviets are guided by the basic goals and indicators of the national economic plan, as they assure the integrity of the economic, political and cultural development of the district. As a result of the reorganization, the functions of the workable management of the national economy have been transferred from the branch ministries and departments to the territorial organs, the District People's Soviets; the center of gravity in the administration of the national economy has been transferred to the districts, to function on the spot. In this way a closer relationship has been established between the organs of administration and production.

The basic production-economic units of the administrative-economic district are as follows: in industry, industrial enterprises; in agriculture, labor cooperative agricultural organizations (TKZKh); in construction, state construction and planning organizations; in the sphere of trade and material-technical supplies, united district trade and procurement and supply enterprises. To utilize more fully all the reserves of the growth of industrial production, the fusing of kindred enterprises of the republic's and local industry is being carried out. Large, profitable khozraschet (self-financing) enterprises are being organized. Should economic expediency require it, industrial enterprises situated on the territory of two or more districts will be amalgamated. Such a united self-supporting enterprise is answerable to the District People's Soviet on whose territory the basic enterprise stands.

In the very near future, agricultural technical equipment from the MTS will pass to TKZKh. The labor production cooperatives and enterprises of local industry which are directly related to the activity of TKZKh are also turned over to them. All this creates appropriate conditions for the fullest and most purposeful utilization of machinery and the labor force. It makes maximum on-the-spot use of the potentials of production growth.

To resolve more effectively a number of problems of the productive and financial activity of enterprises and to increase the initiative and responsibility of the managers and workers, a decree of the CC BCP, of the Council of Ministers and the Central Soviet of Trade Unions "On Expanding the Rights of the Directors of Enterprises, Trade Union Organs and Organizations, on the More Active Participation of Workers in the Management of Production" of March 29, 1958, has extended the rights of directors of enterprises in the area of planning, material-technical supplies, the utilization of the financial capital of enterprises and also the organization of labor and wages. The directors of enterprises are empowered to approve production-financial plans of enterprises on the basis of the fundamental indicators of national-economic plans. The enterprises now are able to make monthly plans for all indicators within quarterly limits. The authority of the directors of enterprises has been increased in the utilization of the physical and financial resources of the enterprises. They have been granted the right to approve the title list of extra-limit capital investments for production purposes and to make capital investments that are outside the plan and outside the limits using the above plan of internal capital. To assure the timely exploitation of production capacities and to make construction cheaper, enterprises are empowered, after preliminary consultation with the planners and builders for purposes of coordination, to make appropriate changes in the construction plans of enterprises, under condition, however, that the estimated cost should not be raised or the projected capacity of the object decreased. The authority of enterprises in utilizing financial capital and materials intended for current and capital repairs has also been increased. For the purpose of a timely realization of valuable proposals by individual officials and worker groups, for the improvement of technology and the technique of production, the enterprises are authorized to draw up a financial estimate for purposes of minor mechanization. At the same time, the enterprises may spend unused funds allocated for capital repairs for the improvement of technique and technology, for a given year, in amounts specified in relation to the size of the enterprise. The directors of enterprises are granted the opportunity, within the limits of the over-all wage fund approved by higher organs, to draw up the lists of production workers, engineering-technical personnel and employees on and off the regular payroll, and the size of

e wage fund according to individual categories of the pro-ction-industrial personnel, and also to specify the work rms (with the exception of the united and the departmental tegories). This helps instill the more valid norms, speci-ed on the basis of concrete conditions existing in a given terprise.

To achieve large-scale participation of workers' groups the administration of production and a fuller utilization the production experience of workers and employees, the thority of trade unions in discussing and resolving prac-al problems of the organization of production and of ad-inistration has been increased. They have been entrusted th the task of organizing production consultations, work-s' meetings, and conferences of directors and rational-ers of production. The purpose of the production confer-ces is mainly to discuss the problems related to the ful-lment of production plans, the improvement of the organ-ation of labor and production, the raising of the quality d the lowering of the cost of production and the cost of nstruction and installation jobs, the improvement in es-olishing technical norms, the implementation of measures r the protection of labor and so forth. The proposals of orkers accepted by the administrative and economic man-ement of enterprises are binding on this management. creasing the authority of trade union organizations helps rengthen social control of the work of the administrative-onomic organs of enterprises, it intensifies the labor ac-vity of workers. In 1958 more than 240.6 thousand pro-ction conferences took place in the industrial enterprises the country, at which about 290,000 proposals on improv-g production were put to the fore. In discussing the pro-ction plan for 1959, the body of workers at the Stefan radjiev cellulose plant brought out additional possi-lities for effecting economies over and above the plan, mounting to 766.7 thousand levs, through better utilization raw materials and supplies. The workers of the plant of e "Gorubso" group of enterprises which specializes in pairs and mechanical production in Kyrdjal, at a discus-on of the production plan at which a collective labor agree-ent was concluded, pledged themselves to effect a saving 600,000 levs by lowering the cost of production.

The active role of the workers in bringing out the maxi-um possibilities for the growth of production has been one the important factors in exceeding the planned rise in dustrial production. Thus, in accordance with the national onomic plan of the republic in 1959, the gross industrial tput should increase by 27.8%, whereas in 1948-1957 the erage annual pace of the growth of industrial production as 15%.

The passing of the industrial enterprises into the juris-ction of the District People's Soviets, as Comrade Zhiv-v noted in the report "On Accelerating the Development the National Economy, on Raising the Material and Cul-ral Standards of the Population and on Reorganizing State d Economic Management" at the third session of the Na-onal Assembly (March 1959), postulates the continuing pansion of the authority of enterprises and their man-ers.

The new forms of administration of the national economy, suring favorable conditions for the development of initia-e on the spot, the broad utilization of the knowledge and e production experience of the workers, contribute to the rther strengthening and perfecting of centralized planned ate management.

The elimination of intermediate links in the administra-e apparatus and the setting up of administrative-economic stricts will render even more important the role of the uncil of Ministers by relieving it of the need to solve a number of petty, operational problems and by enabling it to concentrate its attention on the basic problems of state and economic management. In its activity the Council of Ministers relies on ministries (1) and committees, and also on the District People's Soviets. To strengthen the management and control over the fulfillment of the plans for the development of the national economy and to assure the attainment of state goals, the following committees attached to the Council of Ministers have been set up: The Committee for Industry and Technical Progress, the Committee for Construction and Architecture, the Committee for Labor and Prices, the Commission of State Control.

Under the conditions of the new system of administration of the national economy, the importance of the State Planning Commission and the TsSU (the Central Statistical Administration) of the Council of Ministers has increased. The reorganization of the state and economic administration made it necessary to improve the forms and methods of state planning. This is brought about by intensifying the creative activity and by raising the role of the workers in the working out of the national economic plans, by liquidating superfluous centralism in planning and by increasing the importance of long-range planning, as well as by perfecting the system of the material incentive of enterprises, of workers' groups and of individual workers in the results of their labor.

In recent years a number of important measures in the area of planning have been carried out. They were intended to strengthen the relations of planning with practice and to eliminate excessive centralism in planning. The number of indicators approved by the center was reduced during the 1955-1958 period by more than 70%. The central organs now pass only on those plan indicators which are needed to direct and control the development of the national economy as a whole, to coordinate the activity of individual branches of the national economy and to assure their proportional development.

The reorganization of the administration of the national economy is accompanied by the further development of local initiative in working out the national economic plans.

In Comrade Zhivkov's report at the third session of the National Assembly, attention was called to the need to introduce a more progressive indicator expressing the results of production activity of industrial enterprises and the level of the productivity of labor achieved thus far than the indicator of gross industrial production. In this connection, Comrade Zhivkov proposed discussing the possibility of replacing the indicator of gross industrial output by the indicator of the net output sold. During the discussion of this problem the opinion was also expressed that it would pay to replace the indicator of gross industrial output by the indicator of the output of commodities or the commodities sold while at the same time introducing, as an experiment for some enterprises, the indicators of net output sold.

The acceleration of socialist reproduction and of technical progress, the continued expansion of economic cooperation between socialist countries — all this makes long-range planning in the national economy more important and puts to the fore the problem of the working out of long-range plans for the development of the basic branches of the national economy over a long period (10-15 years). These long-term, long-range plans will determine the chief directions and proportions in the development of the individual branches of the national economy and will thereby create the most necessary conditions for the most correct development of enterprises. On the basis of these plans, five-year plans (broken down by years) of the development of the national economy will be worked out. This will include the

individual administrative-economic districts and enterprises. The reorganization of the administration of the national economy in accord with the territorial principle renders necessary a more close-knit coordination of planning on the branch and territorial level.

Another important element in the strengthening of the role of economic levers in the administration of the national economy is the further improvement of the system of khozraschet (self-financing) and, in particular, of the system of the material incentive of enterprises and individual workers in the results of their labor. To attain this goal it is proposed to increase the amount of profits left to the enterprise, allowing the expenditures of intra-plant construction, capital repairs and also the increase in working capital to be covered mainly at the expense of the profits of the enterprise. Moreover, the question of the introduction of long-term planning with respect to the amount of profits and the deductions for the state budget is posed on the basis of the plans of long-range development of the enterprise, taking into account the degree of utilization of its fixed and working capital.

To accelerate the turnover and reduction in the size of working capital, the effective norms of working capital are brought into correspondence with the modern conditions of production. It is intended that the District People's Soviets determine the average norms of working capital needed by the enterprises in correspondence with the concrete conditions of work at the given enterprise and within the limits of the planned volume of all working capital.

Of great importance to the system of material incentives is the enterprise fund, organized from January 1, 1958, at all the enterprises that formerly had a director's fund. In accordance with the decree of the CC BCP, the Council of Ministers and the Central Council of Trade Unions, of March 29, 1958, the following system for the setting up of the enterprise fund has been established. It is stipulated that money is placed in the enterprise fund on condition that the plan for commodity output, its assortment and quality, and the plan of costs and the attainment of planned profits, are fulfilled. The money for the enterprise fund is deducted at profit-making enterprises from the planned and extra-plan profits, but at enterprises with losses, and at enterprises where the planned profits are less than the amount of deductions that go into the enterprise fund, the money comes from state subsidies. Money is deducted for the enterprise fund, first, if the profit plan was fulfilled one hundred percent or the planned savings from the lowering of the cost of production were made — from the profit realized or the economies achieved in the amount of 4% of the wage fund of the entire personnel of the enterprise in industry, in transportation, in construction and agriculture, and in trade — in the amount of up to 1%; secondly, from every percent of overfulfillment of the profit plan or planned savings from the lowering of costs — up to 0.5% of the total wage fund of the entire personnel of the enterprise.

The maximum annual amount of deductions for the enterprise fund must not be in excess of the 7% annual wage fund for the entire personnel of the enterprise. The higher organs determine the exact amount of deductions to go into the enterprise fund if the plan has been fulfilled 100% in individual branches, in such an amount that the average percentage should not be in excess of the 2% wage fund of all the workers and employees employed in the national economy.

The money of the enterprise fund is distributed on the basis of annual plans worked out by the administration and the trade committees of the enterprises and approved by the general meetings (conferences) of the workers and employees. The money from the enterprise fund is used for housing construction and repairs of the housing fund of the enterprise, for socio-cultural needs (35-40%), to improve the cultural standards and the communal services of workers and employees (25-30%), and to improve the technique and technology of production (5%).

To raise the material incentive of the workers in increasing the production of goods, improving their quality and lowering the costs, it would be important to continue perfecting the system and organization of the remuneration of the labor of workers, engineering-technical personnel and employees. In this connection a number of measures are being implemented to improve the tariff systems and networks, to establish more correct relations between the wage levels of individual categories of industrial-production workers, to make more precise the branch differentials in wages and so forth. A closer dependence of the bonus system on the real results of the work is being established. At the same time, it is proposed to organize a single bonus fund at enterprises to reward workers, engineers and technicians and employees for fulfilling and overfulfilling the plan. Improving the system of material incentives will help the most complete utilization of the growth-of-production assets and foster the rise in the productivity of social labor.

The measures implemented in the People's Republic of Bulgaria for the reorganization and improvement of the management of the national economy constitute one of the important factors in the new, mighty upsurge of productive forces of the country. By 1965 the gross industrial output of the republic will increase 3 to 4 times in comparison with 1957. The volume of gross agricultural output will reach 60 billion levs, i.e., approximately 45 billion levs more than in 1957. The growth of the productive forces of the country will assure the further, steady upsurge of the material well-being of the Bulgarian people.

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Footnote

(1) The following Ministries have been preserved: The Ministry of Foreign Affairs, the Ministry of National Defense, the Ministry of Internal Affairs, the Ministry of Justice, the Ministry of Finance (the former Ministry of Finance and State Control; the Bulgarian National Bank has been taken out of the Ministry of Finance and set apart as an independent organ directly subordinate to the Council of Ministers), the Ministry of Trade, the Ministry of Transport and Communications, the Ministry of Education and Culture, the Ministry of Agriculture and Forestry, the Ministry of Health.

. Strelnikov:

n the Methods of Comparison of ariants of Project Decisions

The present seven-year period will be the period of an precedented scope of construction in all the districts of e country. The volume of state capital investments in the tional economy will increase 1.8 times in comparison th the preceding seven-year period and will be almost ual to the amount of capital investments in the national onomy during all the years of the existence of the Soviet vernment.

In the light of the goals of the seven-year plan, the gency of the problems of the economic effectiveness of pital investments, in particular, of the methods of com-ring the variants of project decisions has immeasurably creased.

"The recommendations of the All-Union scientific-tech-cal conference on the problems of determining the eco-mic effectiveness of capital investments and of new tech-que in the national economy of the USSR" (1) allow two ethods of value comparison of variants. The first method nsists of the comparing of periods in which complemen-ry capital investments are repaid with the savings real-ed on current expenses (the operational expenses) ac-rding to the following formula (paragraph 14 of recom-endations):

$$\frac{A_1 - A_2}{э_2 - э_1} = T \text{ (years)} \qquad 1$$

The second method of comparison of variants recom-ended by the conference consists of comparing variants of the m of capital investments and expenses of productions ile taking into account their remoteness from the current oment (paragraph 17 of recommendations).

The method of evaluating project decisions expounded in ragraph 14 of recommendations gives satisfactory re-lts when the capital investments are made once, whereas e operational expenses are either constant in time or else eir variations are expressed as a rectilinear function. e total expenditures for variants for T (years) in this se may be expressed in the following manner (by trans-rming the formula above):

$$A_1 + э_1 T = A_2 + э_2 T \qquad 1'$$

The formula quoted, 1', makes sense on condition that $э_1$ d $э_2$ express the annual operational expenditures con-nt throughout the entire period of the service of the ob-t, or else the average annual magnitude of these expendi-es.

Actually, the operational expenses almost always are var-le in time even if the capital investments were made only ce, which is related, on the one hand, to the growth of pro-ction (for example, an increase in shipping by railroad) d, on the other hand, to its rationalization (for example, economizing of fuel, electric energy, the simplification the administrative apparatus and so forth).

The systematic variations of operational expenses during the period of amortization, as a rule, are not a rectilinear function of time: these systematic changes are due to the specifics of the development of the given branch of production and should be studied in every individual case. By proceeding from such an analysis it is possible to compute the total expenditures for variants for the entire service life of the object by using the following formula:

$$E' = A' + э' t_1 K t_1 + э' t_2 K t_2 + \ \dots \ + э' t_n K t_n \qquad 2$$
$$E'' = A'' + э'' t_1 K t_1 + э'' t_2 K t_2 + \ \dots \ + э'' t_n K t_n \qquad 2$$

in which K with appropriate signs is the coefficient of deferred operational expenditures during individual years of operation.

After putting the following curves on the graph: $E' = f_1(t)$ and $E'' = f_2(t)$, it is possible to determine the period of time (T_{ok} - the point on the axis t, corresponding to the point of intersection on the curves) at the conclusion of which variational expenses will be equal to $E' = E''$. This period will be the period of repayment. Its computation according to the graph method described gives much more accurate results than the computation according to the formula 1. The use of the graph method (proposed by G. M. Shakhuniants) will aid in the correct choice of variants and a certain increase in the complexity of the computations (putting it more exactly, not an increase in complexity but giving up simplifications) is justified by the aim for whose sake this complexity is allowed to occur.

Thus, the comparison of variants in regard to the period of repayment on the basis of formula 1 is applicable only in those individual cases where the operational costs are constant and it is incomprehensible why the recommendations put this method into first place (page 14), and the second method which is more universal and more exact into second place (page 17).

In the recommendations, the second method of determining the comparative economic effectiveness of variants does not cite either a formula or any concrete method of the realization of the principle underlying it. And yet, the decisions of the section of railroad transport have included a supplement to the project of the conference recommendations which reads as follows: "To include in the recommendation the formula of the comparison of all the expenditures for the construction and operation of the object, taking into account the coefficient of deferred expenditures." (2)

Such methods in relation to the problems of planning new railroad lines were developed by Professor M. M. Protodiakonov as early as the 1930's (3) and were developed further and made more precise in the work of the All-Union Scientific-Research Institute of Transport Construction (TsNIIS), published in 1956. (4)

The method accepted by TsNIIS contains the following formula for computing total expenses for variant:

$$E = \Sigma AK + \Sigma эK = \min.$$

where K is the variable value of coefficients of deferment of multi-stage capital expenditures and operational expenses which vary intermittently after the conclusion of every stage of capital investments. In its developed form

this formula is as follows:

$$E = A_1 + A_2K_2 + \ldots + A_nK_n + э^{ср}_{a1}t_{a1}K^{ср}_{a1} + \ldots + э^{ср}_{a1}t_{an}K^{ср}_{an} + B\left(a + bt_i + \frac{B}{p}\right) = \min, \quad 3$$

where:

A_1 — initial capital expenditures

$A_2 \ldots A_n$ — the succeeding capital investments at every stage of their realization

$э^{ср}_{a1} \ldots э^{ср}_{an}$ — the annual operational expenses of individual periods of operation which are taken as equal to the expenses made in the year of operation which comes in the middle of every period

$t_{a1} \ldots t_{an}$ — the number of years in the period between the adjacent stages of capital investments

$K_2 \ldots K_n$ — coefficients of deferment for corresponding stages of capital investments

a — the amount of operational expenses during first year of operations

b — the size of the average annual rise (drop) in operational expenses

t_i — the number of years from the beginning of operation to the end of the accounting period $t_{a1} = t_{a2} + \ldots + t_{an}$

p — the coefficient of the effectiveness of capital investments

B — the coefficient determined according to p and i by formula $B = \frac{1}{(1 + p)^{t_i}}$

The coefficient of deferment is determined according to the formula:

$$K = \frac{1}{(1 + p)^t}$$

The last components of formula 3 are the sum of operational expenses for an unlimited time span before the end of the accounting period, taking into account their remoteness, with the variation in the operational expenses taken as being the same for every year after the accounting period.

Formula 3 corresponds to the general case of the comparison of variants when the capital investments are multi-stage and the operational expenses vary intermittently after every stage of new capital investments. It may easily be reduced to the particular case of one-stage capital investments and the stability of operational expenses.

To use formula 3 it is necessary to calculate the coefficient of effectiveness of capital investments. The method of computing this coefficient is therefore particularly worthy of notice. In the work of TsNIIS that is now being considered, the coefficient of the effectiveness of capital investments, necessary for the calculation of deferred expenses, is determined by analyzing indicators which express the changes in the value of production, i.e., the expenditure of social labor. On the basis of an analysis of the goals of the fifth five-year plan,the average annual pace of the depreciation of expenditures was determined within 5-9% limits, and by taking into account the average size of the renovation quota equal to approximately 2%, the coefficient of the remoteness of expenditures (p) was taken to be approximately 7-11%.

A typical trait of the TsNIIS method is the differentiation of the coefficient of effectiveness within the limits of its established range (7-11%) depending on the class (expensiveness) of the works. Such differentiation, in our opinion, is well founded. The differentiation of coefficient p depending on the class of the works gives the planners a chance to evaluate thoroughly the effectiveness of their decisions and, among other things, to resolve correctly the problem of the advisability of realizing projects that specify the particular strength or durability of one or another type of works.

Unfortunately, nothing has been said in the recommendations about the advisability of differentiating the coefficient of effectiveness depending on class (expensiveness) of the construction objects. In page 13 we read about the differentiation of this coefficient only by branches of the national economy. And yet, some participants in the conference pointed to the need for such a differentiation. Thus, A. E. Gibshman (The Moscow Transport-Economic Institute) in his report "On the Determination of Economic Effectiveness of the New Technology of Railroad Transport," said among other things: "The period of repayment for objects whose reorganization is connected with considerable capital expenditures should be longer," (5), and, consequently, the coefficient of effectiveness should be less than for objects that were less expensive.

Thus, the peculiarities of the method developed by TsNIIS consist of the following. First, this method of project decision encompasses most fully the various instances of comparisons of variants. Formula 3 reflects multi-stage capital investments and any type of changes in operational expenditures in time. By way of transformations it can be simplified, for example, in those instances where the capital investments were made one at a time or where the operational expenses are constant. Thirdly, it presupposes the calculation of operational expenses beyond the limits of the accounting period. Finally, its advantage, in our opinion, lies in the fact that it allows for the differentiation of the coefficient of effectiveness of capital investments, depending on the class(expensiveness)of the construction.

All these peculiarities of the method under scrutiny are the result, so it seems to us, not of the specifics of capital investments in railroad transport. An estimation of the variable nature of operational expenses, the multi-stage nature of capital investments, their effectiveness (in relation to the remoteness of the period when this effectiveness is determined) and so forth, is necessary to some extent and in evaluating the advisability of the realization of the projects under analysis in any branch of production.

The method proposed by TsNIIS, to be sure, is not ideal, and it has some shortcomings. The computation of the size of expenditures beyond the limits of the accounting period according to the method developed by TsNIIS is very imperfect: in summing up the operational expenses, the latter are determined according to theoretical formulas based on the method of extrapolation, whose reliability, at the very least, is doubtful. More advisable seems to be the comparison of variants for the determination of expenses beyond the limits of the accounting period according to the reserves of production capacity at the end of this period (for projects of railroad construction — according to the reserves of its transport or carrying capacity). A great shortcoming of the TsNIIS method is also the fact that coefficient p, used to measure the effectiveness of forthcoming capital investments and the size of forthcoming operational expenditures, is taken as a constant magnitude. Actually, this coefficient is unequal not only in different branches of production, but also in the same branch at different stages of its development. What is needed to determine correctly coefficient p for a definite period is as follows: an analysis of concrete conditions of the development of the branch, the conditions and nature of the technical progress at a given period, the conditions needed to assure

e given branch of raw material, fuel and a labor force
d, finally, the size and direction of the capital invest-
ents in the branch under scrutiny, envisaged by the plan
a given period.

Undoubtedly, the planned effectiveness of capital invest-
ents in railroad transport in the current seven-year peri-
will differ from the effectiveness computed in the TsNIIS
rk on the basis of figures specified by the fifth five-year
an, because the period 1959-1965 will be a period of rad-
al technical reconstruction of railroad transport, into
ose development, according to control figures, it is in-
ded to pour 85-94% more capital than in the preceding
ven-year period.

The indicated shortcomings of the TsNIIS method are not
ganically a part of it, they may be eliminated. As for the
sence of this method, in our opinion, it encompasses more
neral instances of the determination of economic effec-
eness of capital investments than formula 1 in the rec-
mendations of the conference. The further development
formula 1 is also the graph method of the determination
the period of repayment proposed by Professor G. M.
akhuniants.

Literature Cited

(1) See: Voprosy Ekonomiki, No. 9, 1958, page 154.
(2) See: Voprosy Ekonomiki, No. 9, 1958, page 153.
(3) See: Professor M. M. Protodyakonov: "Railroad Re-
arch and Planning." Transzheldorizdat (Transport and
ilroad Publications), 1934, page 125.
(4) See: V. I. Petrov: "A Comparison of Variants in
anning New Railroad Lines." TsNIIS, Announcement No.
Moscow, 1956, page 11.
(5) See: Voprosy Ekonomiki, No. 9, 1958, page 151.

Barats, V. Volobuyev:

ne Determination of Production Ca-
icities and an Analysis of Their
tilization

sing ferrous metallurgy as an example)

The improved utilization of production capacities is of
eat importance for the development of socialist econom-
. A fuller utilization of the available production equip-
nt in all the branches of industry makes it possible to
rease the output without new capital construction. The
fillment of the monumental goals of the seven-year plan
nands a rise in the standards of work in organizing the
oduction capacities of enterprises, in bringing to light
inner potentialities for an increase in capacities and in
lizing these potentialities in the interest of communist
struction.

The planning figures of the seven-year plan, ratified by
21st Congress of the CPSU, specify an increase in the
oduction capacities of ferrous metallurgy during 1959-
5. The average annual increase in the smelting of steel
s 4.4-5.1 million tons. The expanding and reconstruction
he existing plants and the construction of new metallur-
al production combines, the largest in the world, will
p increase the annual smelting of pig iron on the average
m 341,000 tons per one blast furnace in 1958 to 543,000
s in 1965, and from an average of 125,000 tons up to
,000 tons of steel per one Martin furnace. The average
ual capacity of one metallurgical plant in pig iron pro-
tion increases toward the end of the seven-year period
by 836,000 tons and in steel production by 588,000 tons.

The increase in the average capacity of metallurgical production combines and the further technical progress of ferrous metallurgy will lead to the sharp improvement of the indicators of utilization of production capacities in blast furnace and steel smelting productions. In 1965 the coefficient of utilization of blast furnaces of a useful furnace size will be no greater than 0.7 on the average throughout the USSR, and the removal of steel from 1 sq. meter of the hearth of Martin furnaces, no less than 8.7 tons.

As the volume of the production of metal increases, the importance of the further improvement in the utilization of the capacities of metallurgical production combines steadily increases. "What the fuller utilization of blast and Martin furnaces signifies," said Comrade Brezhnev at the 21st Congress of the CPSU, "can be demonstrated with the following figures. The improvement of the coefficient of utilization of the useful volume of blast furnaces, as against the planned improvement of only one hundredth, will show in 1965, for example, an increase in the production of pig iron of almost one million tons, whereas an increase in the removal of steel by only one tenth of a ton from a square meter of hearth of Martin furnaces ensures a rise of production of steel of more than 800,000 tons per year." These figures are a graphic example of the role of correct determination of production capacities and improvement in their utilization.

In economic literature a concrete, thorough analysis of the potentialities of growth and better utilization of production capacities quite often is superseded by various kinds of formal statistical computations of norms, usually based on account data. Thus, it is recommended to use the indicators achieved by a definite segment of the best production workers for the account of production capacities or else the indicators achieved during the best months of the work of the enterprise in the accounting year. Such figures cannot be taken as underlying the determination of production capacities. The correct computation of capacity requires a concrete study of all the factors of production conditions of the unit, workshop, or plant, and the possibilities for utilizing the advanced experience of other enterprises of a given branch, realizing the unused potentialities and prospects for the perfecting of the given production as well as an account of the results which will be obtained if the organizational and technical measures earmarked for the planned period are implemented.

The production capacities cannot be established without taking into account the possibilities for instilling advanced experience. If, for example, it is planned at a metallurgical plant to raise the basicity of fluxing agglomerate in utilizing the advanced experience of other enterprises, then the established production capacity of blast furnaces may be higher than the best indicators for any period of time in the past year. For, in the period ended, the most advanced workers, even in periods of time most favorable for production, applied an agglomerate of low basicity. This is one of many examples.

The method of the determination of production capacities is primarily the result of the practical part which this indicator is called upon to play in production.

For example, the capacities of metallurgical aggregates are determined annually in some capitalist countries as well. The data about the established capacities in the USA are made public in the periodical press. It is necessary, however, to indicate the radical difference in the aims of such calculation and the resulting divergence of principles and methods in determining production capacities of the metallurgical plants of the USSR and USA.

The method of the determination of production capacities of the metallurgical aggregates in the USA pursues the practical goals made necessary by the nature of capitalist production. It is known that the state of the market in the USA is the object of constant observation by special institutes, owing to the entirely natural interest that the USA industrial corporations evince in this respect. The degree of utilization of the capacities of ferrous metallurgy is one of the essential indicators of the loading of metallurgic enterprises determined by the market standing of ferrous metals. But it would be a mistake to judge by this indicator the existing possibilites for increasing the output of metal with the available equipment by using more perfect methods of technology and organization of production.

The purpose of the indicators of production capacities, necessitated by the capitalist system of the economy, determines other methods of their establishment than the methods used in the countries of socialism. In determining the production capacities in the capitalist countries, the productivity of aggregates achieved during the year of the highest market levels is fixed. The purpose of the calculation of production capacities is to determine the maximum possible output proceeding from the premise that the methods of production and the average normal loading, as a rule, do not change and the pattern of demand remains the same.

The production capacities of ferrous metallurgy calculated in the capitalist countries, in particular in the USA, fix the level of production actually achieved in the year when the market was in a normal condition, and when the conditions of the sale of products and the supplies of raw material were normal. The actual data of the changes in the utilization of aggregates are evidence that the norms of the removal of metal taken when determining the capacities remain the same for many years. Thus, according to the annual capacity of blast furnaces established in the USA, 299 tons of pig iron fell to 1 cubic meter of the useful volume of the blast furnace in 1945, 300 tons in 1951, and 298 tons in 1954.

An analysis of the loading of production capacities in capitalist countries purposes to bring to light the possibilities of utilization not of all the means for the increase of production, but only those that are necessary for the satisfaction of the demand for the goods, in this case for metal. The degree of the utilization of capacities is determined by comparing the actual volume of production with the obviously lowered indicators of production capacities at the given technological level, this serving to conceal the actual degree of their incomplete loading.

The goals pursued in studying the production capacities in a planned socialist system of the economy are entirely different. Under socialism the purpose of determining production capacities depends on the goals of socialist production and the means used for their attainment. Under socialist conditions, which ensure the steady expansion of production, the determination of production capacities and the degree of their utilization are directly linked to the constant perfecting of the methods of production, the steady rise in the productivity of labor at the highest technical level. We are speaking mainly of the capacities established for a definite period, taking into consideration the fullest utilization of production potentialities created in the course of technical progress.

In keeping with this task, the production capacity of the metallurgical production combines, workshop or plant, is determined in our country as the maximum level of its productivity for the given period, computed on the basis of advanced technical norms of the utilization of equipment, raw materials and supplies, the most rational technology and organization of production and labor, while taking into account foreign experience in perfecting technology. It is important here to determine what the production capacity of the given production combines are in instilling the most advanced methods of organization and technology of production with maximally skilled workers, the best modern technique of administration, the use of the most perfect methods for preparing materials and so forth. The determination of the indicators of production capacity which corresponds to the level of high technical norms of productivity in combination with the working out of measures for attaining these norms is due to the need to plan work in accelerating technical progress, raising the technical and organizational level of production over a period of several years.

In addition to determining production capacities at the level of the highest technical norms, the production capacities for every year are also established. Such a determination of capacities for every enterprise is an obligatory element in the drawing up of the plan, since this is what underlies the calculation of the production program of the production combines, workshop or enterprise. It is natural that the planning norms, used in determining production capacities for the planning year, are at the same time norms that underlie the calculation of output; in other words, the determination of production capacities is inseparable from the work of composing the production program.

It should be noted that the production program of the enterprise, as a rule, should be less than the capacity, since the organizational, technical measures for the increase of capacity usually may not be realized at the very beginning of the planning period, as they are implemented throughout the whole year. The degree of deviation of the program from the capacities will be equal to the difference between the level of the preceding productivity, taking into account the amount of time it takes to instill the new measure. For example, the installation of perfected equipment will give an annual increase in the smelting of pig iron and, consequently, in the capacity of the blast furnace of 25,000 tons. However, the production program of the workshop for the given year should be increased accordingly only by 12.5 thousand tons.

The determination of the production capacities must be based on an analysis of technology, organization and the economics of production. During the process of investigation of technological regimes and the organization of production, advanced experience in the given workshop and in similar workshops in other enterprises is studied. This makes it possible to discover the unused potentialities for expanding output, for raising its quality, for economizing raw materials and supplies and for raising the productivity of labor.

One of the most essential elements in determining the production capacities of a given group of production combines, or workshop, is the working out of technical and organizational measures whose implementation should ensure the mobilization of complementary reserves of increased output brought to light in the process of investigation.

In the light of the problems of the development of the national economy of the USSR posed by the Party in 1959-196 and for the next fifteen years, the determination of the norms of production capacities acquires particular importance. Underlying the future plans of the output of production by enterprises should be the production capacities determined on the basis of technical and organizational measures which it is intended to instill into production. Relate

them are measures of branch and national economic importance, including measures for instilling progressive methods technology, for radical improvement in preparing raw materials and supplies and so forth. These measures cannot planned within the framework of one enterprise; they are plemented on the scale of the branch, economic district national economy as a whole and should reach the enterises as data to be used as a source of directives which termine the basic trend of improvement in the utilization production capacities. The task of the enterprise is to ke a practical application of these measures in relation their production combines and to complement them by easures of intra-plant dimensions.

We cannot avoid noting that in a number of cases, in awing up annual plans of work by enterprises, the calcuions of production capacities at enterprises were done thout sufficient coordination with measures of national onomic or branch importance in regard to improvement the utilization of capacities. As a result, the level of cacities established at the given enterprise did not correond to the actual potentialities in the improvement of the lization of available equipment.

The determination of production capacities is closely nnected with the scientific working out of technical norms. terprises have accumulated great experience in this ea, which has been illuminated in our economic literature. However, in works devoted to problems of determination production capacities, due attention is not paid the relan of these norms to the entire planning activity in bring; to light and mobilizing the potentialities of the increase output. Production capacity is often interpreted as the aximum possible productivity, unrelated to a definite nning period. Production capacities when thus treated come converted into indicators of maximum productivity production combines, from an active means for the imovement in the utilization of equipment in a definite calenr period, irrespective of the place, time, means and real nditions and possibilities for the realization of one or other measure.

Yet, the determination of production capacities does not the least try to answer the question: What, generally eaking, could, for example, the annual output of pig iron the blast furnaces of the given enterprise be if iron ores h the highest content of iron alone were used, or else, y coke with the lowest content of sulphur? The capacis calculated in this manner are practically useless. It uld be a profound mistake to judge of the level of utilizan of equipment by comparing the actual annual output h production capacities determined by this method. The termination of production capacities should be based on study of the real possibilities for the improvement of hnology, organization and economics of production in that nning period of time with respect to which the capacity being determined. In this case the production capacities l play the role of a mobilizing factor in improving the lization of equipment.

The working out of production capacities in every enterse should stem from the problem of implementing meass directly related to the general trend of technical ogress in the forthcoming period. In determining producn capacities of metallurgical enterprises, enormous attion should be paid the measures for the raising of the ductivity of metallurgical production combines included the planning figures for the economic development of the SR in 1959-1965. These measures include the preparan of iron ores for smelting via concentration, agglomeran and clotting, the use of natural gas combined with gen in blast furnaces and Martin furnaces, the use of oxygen in the production of converter steel, the processing of pig iron outside of the furnace to eliminate the impurities, automation and mechanization of production in blast and Martin furnaces and rolling mills, et al.

Under the conditions of our economy, when the determination of production capacities purposes to bring to light potentialities for the increase of output in every group of production combines, it becomes especially important to analyze the utilization of production capacities. It should help bring out the obstacles to the further rise in the utilization of equipment, and also help instill the advanced experience of analogous production combines, sections and mills and to mobilize additional output reserves on the basis of this.

Such an analysis should be operative, i.e., should be done not only according to annual totals but also according to the totals of every month, by way of comparing the actual indicators of the work with the indicators determined according to plan, with account data for the preceding period. At the same time this analysis should be concrete, sufficiently simple and based mainly on the existing accounting system that does not require a larger volume of accounting and analytical work. An analysis of utilization of production capacities is carried out in some measure at every plant. However, there is as yet no single method of analysis of the utilization of production capacities (or any method of their determination) for the enterprises of the given branch of industry. At some enterprises this analysis is formal in nature, which hampers the systematic unearthing and mobilization of intra-production potentialities.

To eliminate this essential defect it is necessary to work out analytical methods of utilization of production capacities and to organize the study of the work of production combines and mills of the same type at various enterprises.

It is natural that the enterprises should not be able to perform their own analysis of the utilization of capacities, taking into account the data that give an all-round characterization of the achievements of other enterprises. This is also impossible for the sovnarkhozes since, within the limits of one economic administrative district at various enterprises, there are no production combines of one type, or else their number is extremely limited. Such a comparative analysis of the utilization of production capacities should be done at branch, republic and All-Union scientific-research institutes where, as a rule, there are economic laboratories and groups. The results of the analysis should be brought to the attention of relevant sovnarkhozes and the enterprises of the given branch. The enterprises will then be enabled to take account of the large reserves that are detected in comparing the work of production combines and mills of one type. This problem has long been ripe and its resolution will have an essential influence on the improvement in the utilization of production capacities of a socialist enterprise.

V. Sergeyev:

Some Problems of the Development of Domestic Trade in the GDR

The Socialist Unity Party of Germany and the GDR government, guided by the Marxist-Leninist theory and creatively using the experience of the Soviet Union and other countries of the socialist camp, consistently implement the socio-economic reorganizations in the sphere of commodity

turnover in an all-out effort to develop and strengthen socialist trade.

In the German Democratic Republic this process has passed two stages. At the first stage (from the middle of 1945 to the end of 1948) the socio-economic reorganizations in trade were basically anti-fascist and democratic in nature. At the second stage (from the end of 1948) the problems of organization and development of state trade, and of the strengthening and further expansion of cooperative trade are being solved. At this stage, reorganizations in trade are socialist in nature.

Socialist reorganizations in the sphere of commodity turnover were partially implemented during the first stage: the restoration of consumer cooperatives on a socialist basis, the transfer of part of the property and funds of trade monopolies to consumer cooperatives and also of the property and means of war criminals and active Nazis (totalling 109 million marks), the transfer of the sales organizations of industrial monopolies and some large private department stores to public ownership.

Socialist reorganizations in the sphere of trade in the GDR were put into effect somewhat later than in the sphere of industrial production. Thus, a state trade branch was not immediately created on the basis of the confiscated property of monopolies, war criminals and active Nazis. National (state) trade was organized somewhat later. In liquidating trade monopolies in the GDR, far-reaching nationalization not only of petty private trade but also of private-capitalist trade was carried out.

In distinction to other countries which today are building socialism in which consumer cooperatives, capitalist in nature, existed before the establishment of a popular democratic regime, they were actually liquidated in Germany during the fascist dictatorship. Therefore, the apparatus of the consumer cooperative had to be created anew in the GDR on a socialist foundation.

The SUPG and the government of the GDR proceed in their policy from the need of the fusing of all progressive forces for the unification of Germany on a democratic basis, from the possibility of the re-education of private merchants and their enlistment in socialist construction. In doing this, such factors are considered as the existence of a far-flung trade network, a relatively high level of its specialization, the experience of participation by private merchants in the centralized supplying of the population with goods and the like. State regulation of private trade and the enlisting of private merchants in socialist building are realized by expanding the system of negotiations between state industrial enterprises and private trade enterprises, by setting aside trade capital, by setting state prices, and by concluding commission agreements between state and cooperative trade organizations with private merchants for the sale of the goods of these organizations.

One of the forms of the gradual socialist reorganization of private trade is commission sales, i.e., the voluntary conclusion of an agreement by the state wholesale organization with the owner of a private enterprise for the sale of its goods.

The 4th Plenum of the CC SUPG (January 1959) has stressed that the main form of enlistment of private retail merchants in socialist construction is selling on commission. In the GDR, in June 1957, the commission agreements were concluded by 233 private merchants, and in March 1959 by 11,000. The further expansion of commission trade and also the organization of mixed state-private trade enterprises is scheduled for 1959.

In the sphere of commodity turnover in the GDR there are socialist and capitalist sectors and also petty private merchants who do not employ hired labor.

Socialist wholesale trade occupies a dominant position in the sphere of turnover. In 1958 the relative importance of the socialist sector in wholesale commodity turnover was 96%. The socialist sector also predominates in retail commodity turnover. All this is an evidence that the problem of "Who will replace whom?" in the sphere of commodity turnover in the GDR, essentially, has already been solved in favor of socialist trade.

The socialist trade of the GDR, conducted in the interest of all-out satisfaction of the constantly growing needs of the workers and the speediest rise in production, is systematically developing and becoming strengthened in two forms: state and cooperative.

With the organization of state wholesale and retail trade, at the end of 1948 and the beginning of 1949, the contradiction brought about by the concentration of industrial production in the hands of the state and the existence of private trade capital as a middleman between it and the consumer has been eliminated.

State trade proved to be an important economic lever of regulation of the whole domestic trade and the liquidation of the black market. It became the basic form of supplying the population with a wide assortment of high-grade goods at steadily declining prices. In 1957, about 50% of all retail commodity turnover of the socialist sector and approximately 35% of the retail turnover of the entire trade were carried out through state enterprises. In 1959, the share of state trade in over-all retail commodity turnover will reach 38%.

Exemplary trade is conducted by "HO" — "Handelsorganisation" — a state organization that concentrates its activity mainly in cities and districts where new industrial construction is in progress. State industry has also organized trade by firms for the purpose of directly studying demand by buyers and cultural improvement of sales servicing.

A consumer cooperative is the first bulwark of socialist domestic trade of the GDR. It was restored (from the end of 1945) on essentially new, socialist premises. As early as the first period of restoration, it overtook and surpassed the 1932 level with respect to many indicators (the eve of the seizing of power by fascists in Germany). The GDR consumer cooperative carries out the sale of goods in the city and the villages. From 1953 its activity has been concentrated mainly in agricultural areas, acting as a cementing bond between the working class and the peasantry. During the postwar period the relative importance of consumer cooperatives in retail commodity turnover in the GDR rose considerably (29.8% in 1957). It should be noted that in the FGR only 3.3% of retail commodity turnover in 1957 to consumer cooperatives. In 1959 the share of consumer cooperatives in total retail commodity turnover of the GDR rose to 32% (in accordance with the plan).

The GDR consumer cooperatives are a powerful, popular democratic organization of workers, which had 3.5 million shareholders in 1957. The membership of the cooperative consists mainly of workers and employees.

The peasant trade cooperative "BHC" — "Bauerliche Handelsgenossenschaften" — sells to the population primarily goods used in production. Peasant trade cooperatives and consumer societies, in their capacity as the simplest forms of cooperation, play an important role in the development of the peasant production cooperatives, they help the growth of agricultural production. As the peasant production cooperatives developed in the GDR, trade carried out by agricultural production cooperatives (SKhPK) arose. However, this trade did not develop on a wide scale and did not

come an independent form of socialist trade.
The basis of expansion of retail commodity turnover is reased production of commodities and a rise in the buy- capacity of the population. In 1950-1957, gross indus- al output increased 2.3 times, and gross agricultural out- rose by 50%. In the GDR gross industrial output rose by 9% in 1958 in comparison with 1957. In West Germany lustrial output increased by only 3% in comparison with 57. During the same period, agricultural output in the GDR reased by 6.7%. In 1958 the monetary income of the GDR pulation increased by approximately 3.1 million rks.
In increasing the commodity stocks of the population of the R, the role of foreign trade is important. A considerable t of raw materials and foodstuffs is imported in exchange exported machinery and equipment. The total volume of R foreign trade in 1950-1957 increased 3.9 times. Ex- t increased 4.5 times and import 3.4 times. In 1958, as mpared with 1957, the foreign trade turnover of the coun- rose by 4.2%, including a rise in exports of 4.4%.
GDR imports, foodstuffs and other consumer goods have h relative importance, on a par with raw materials. ile the total GDR import in 1958 increased 4% in com- rison with 1957, the import of fine wool rose by 50%, of ton goods by 85%, powdered cocoa by 3.4 times, coffee 31%. Seventy-four percent of GDR foreign trade turn- er took place in the world socialist market.
One of the characteristic traits of the development of do- stic trade in the GDR, as in other socialist countries, is the t growth of the volume of retail trade. The retail per pita commodity turnover in the GDR in 1950-1957 increased comparable prices) more than 3 times (in West Ger- ny it increased only by 50% during the same period). At end of the first five-year plan (1955), the prewar level s attained in the GDR in regard to the physical volume of the e of goods to the population. In 1958 the population of the public bought 38.1 billion marks worth of goods, or 9.5% re than in 1957. The volume of retail commodity turn- er for 1959 is planned in the amount of about 40.5 billion rks. This year the per capita commodity turnover will 2,342 marks as against 1,506 marks in 1953. In 1960 commodity stocks for the population will increase as inst the 1958 level (in comparable prices) by one-fourth, l by 1965 by more than twice.
An important feature of the development of domestic de of the republic is the higher rate of growth of com- dity turnover in the socialist sector in comparison with vate trade, the steady rise of the relative importance of socialist sector in retail commodity turnover (73% in 58 as against 17% in 1948).
Socialist reorganizations in the sphere of retail trade are ried out on the basis of corresponding reorganizations the sphere of production. In 1950-1958, the share of the ialist sector in gross industrial output increased from % to 89% and of gross agricultural output from 9.2% to 8%. The rapid growth of socialist production is the ma- ial base of the increase of socialist trade in retail com- dity turnover. The state concentrates in its hands the sic amount of commodity resources and systematically tributes it in the best interests of the workers.
The development of retail commodity turnover in the GDR accompanied by the qualitative improvement in the com- sition of the commodity turnover. With the rise in the ree of the satisfaction of consumer demand for food- ffs, the sale of non-food products increases and their ative importance in retail commodity turnover (from % in 1946 to 43% in 1958) goes up.
The physical volume of the sale of foodstuffs, especially meat and meat products, fish, fish products, fats, eggs and cheese is rapidly growing in the GDR. The German Democratic Republic has already outstripped West Germany in the per capita consumption of such foodstuffs of prime importance as meat, butter, animal fats and sugar. It should be noted that the supplying of the population with animal products, rich proteins and fats, is growing at a much faster pace than the supplying of vegetable products. Thus, the demand of the population is gradually converted from products less valuable in their nutritive and taste properties to more valuable and caloric products. The quality and assortment of foodstuffs are expanding.

Within the group of other than food products, essential changes are also occurring. They are the result of the rise in the buying capacity of the population and of the different paces of the growth in the production of individual consumer goods. The physical volume of the sale of goods other than foodstuffs is increasing. There is a rapid growth in the sale to the population of leather footwear, outer knitted clothing, radio sets, television sets, bicycles and cameras. The sale of motorcycles, cars and other goods has expanded considerably. The consumption of woolens and silk goods is growing rapidly.

However, the popular demand for individual items outside of the category of foodstuffs is not yet fully satisfied. The 33rd Plenum of the CC SUPG (1957) has noted that the production of these goods is still limited because of the scarcity of raw materials and a number of other causes. The growth of the market stocks of some goods in many ways depends on the import of these goods or the raw products needed in their preparation. Serious attention is being paid in the GDR to the problem of increasing the production of goods other than foodstuffs. The ever-increasing output of these goods ensures the further growth of commodity turnover and the improvement in the quality of its composition.

One of the most important conditions of a steady development of state and cooperative trade is the systematic expansion of the retail trade network. From 1950 to 1958 the number of trade enterprises in the "KhO" state organization rose from 2,294 to 33,800. Consumer cooperative enterprises rose from 14,073 to 35,100. The trade network in the socialist sector is much larger than in private trade.

The improvement in the territorial distribution of the trade network occurs mainly through the systematic expansion of the state trade network, primarily in the districts of new industrial construction and in cities, and also through the development of the trade network of consumer cooperatives in the village. In 1958 more than half of the total number of stores and restaurants of the consumer cooperative organization were in the countryside.

The specialization of the trade network occurs at the same time as its expansion and more equal distribution. The share of the specialized stores in the state trade network rose in the GDR from 30% in 1952 to 45% in 1957. The share of specialized stores in the consumer cooperative organization in 1957 was approximately 30%.

The improvement in service to shoppers in the GDR is due not only to the expansion and specialization of the trade network but also to the development of various forms of sale of goods to the population (self-service stores, departments with an open display of goods in the stores, the sale of goods on the installment plan, mail order trade, stores renting goods, automats, home delivery of goods, stores attached to production enterprises and organizations, et al.).

Together with the development of state and cooperative trade in the GDR, the skills and the labor productivity of trade workers rise. In 1957, 370,000 workers and employees were employed in socialist retail trade, including 208,000

sales clerks. During the first five-year plan, the commodity turnover per one worker in state retail trade, in comparable prices, rose by 135%.

The growth of the productivity of labor is helped by the rise of socialist competition and a modern movement in state and cooperative trade in the GDR, testifying to the growing intelligence and initiative of the trade workers. During 1953-1958, the workers of socialist trade contributed 133,-121 rationalizing proposals, whose realization resulted in a saving of 47.8 million marks.

In May 1958, a measure of great economic, social and political importance was carried out in the German Democratic Republic. It is a measure that testifies to the continuing achievements of the workers of the GDR in the building of socialism: the People's Chamber of the GDR ratified a law completely eliminating food rationing cards in the republic. The measures carried out in connection with this (the regulating of prices and taxes, the raising of wages and salaries, the lessening of the differential in the remuneration of labor between the variously paid categories of workers, and so forth) touched on all the elements of expanded socialist reproduction: production, distribution, exchange and consumption. All these measures were intended to continue substantially raising the living standards of the workers.

In accordance with the law ratified by the People's Chamber of the GDR, rationing cards for meat, fats, milk and sugar have been eliminated, and uniform prices for these products have been set by somewhat raising the low rationing prices and lowering the commercial prices. At the same time, retail prices of a number of consumer goods which formerly were sold without rationing cards were lowered.

Commercial prices and uniform retail prices were lowered on the whole by 2.6 billion marks; products which previously were rationed were increased by this amount, i.e., the general level of retail prices remained the same.

The relationship of prices for food products and other consumer goods and also the relationship of prices for individual items was improved. This resulted in some change in the ratio between procurement and purchasing prices for farm products.

In connection with some rise in the prices of products which were previously rationed, the low-paid categories of workers and employees were not only fully compensated fo it, but had actually gained something: their wages were raised. The amounts of pensions and grants were also raised.

A total elimination of rationing cards helped the further growth of retail commodity turnover and the improvement of the qualitative indicator of trade. The responsibility of trade organizations and enterprises for the uninterrupted flow of all consumer goods to the population has become greater. The influence of trade on production has increase and this has been reflected in an improvement in the qualit of goods as well as in their wider assortment. In October 1958, the problems of the further development of trade and improvement in supplying the population with consumer goods were considered at the meeting of the Politbureau of the CC SUPG.

Domestic trade in the GDR is going to play an important role in resolving important problems presented to the workers of the republic by the 5th SUPG Congress, the most important of these being the solution of the main economic problem of the GDR — to prove as quickly as possible the superiority of the socialist regime over the West German capitalist order to overtake and pass West Germany in per capita consumption of the most important goods. This, in turn, will help the successful conclusion of the building of socialism in the German Democratic Republic and the struggle of the German people for the reunification of Germany on a democratic basis.

.. Zaplavniy:

nstitute — Sovnarkhoz — Production

The new forms of administration of production and construction have been tested in practice for two years. During this relatively short period the enormous advantages of the reorganized system of administration, its role in the further upsurge of all the branches of industry of the economic districts and in raising the social productivity of labor, have been adequately demonstrated. The reorganization of the administration of industry and construction is of great importance in strengthening the ties between science and production. This is sufficiently well illustrated by the example of the Altai Mining and Metallurgical Institute of the Academy of Sciences of the Kazakh SSR and the sovnarkhoz of the Eastern Kazakhstan economic administrative district.

The Institute was founded ten years ago in Ust-Kamenogorsk. In addition to geological, mining and metallurgical laboratories, this scientific institition has also organized a department of economics. The basic trend of the department's research is the complex working out of the problems of the development of non-ferrous metallurgy and electric power of the mining area of the Altai, of problems of the raising of the effectiveness of the utilization of new techniques and advanced technology in non-ferrous metallurgy, the study of methods for raising the productivity of social labor on a foundation of specialization, the organization of cooperatives and the coordinating of industry within the district, and the establishment of rational ties between the economic districts of the country.

The setting up of the sovnarkhoz of the Eastern Kazakhstan economic administrative district helped attract large numbers of local scientific institutes in solving the basic problems of technical progress at mining, concentrating and metallurgical enterprises, and also in determining the effective trends of capital investments during the seven-year period (1959-1965) and the succeeding 15-20 years. At scientific-technical conferences, conducted by the Institute together with the sovnarkhoz, these and other urgent problems were discussed. At the conference the following reports of the staff members of the department of economics of the Institute were heard and discussed in connection with the problems of the development of non-ferrous metallurgy in the Altai: "The Development of the Productive Forces of Eastern Kazakhstan During the Forty Years of the Existence of the Soviet Government," "The Basic Trends of the Development of the Industrial Electric Power Complex of Eastern Kazakhstan (1959-1965)," "The Economic Evaluation of Electric Smelting of Crude Lead in the Mining Area of the Altai," "The Monetary Evaluation of Mineral Deposits of the USSR."

Another joint scientific-technical conference (December 1958) was devoted to the discussion of the theses of the report of Comrade N. S. Khrushchev at the 21st Congress of the CPSU. The following reports were discussed at the conference: "The Prospects of the Development and Problems of Non-Ferrous Metallurgy in Eastern Kazakhstan in 1959-1965," "The Problems of Geological Research Organizations and the Prospects for Increasing the Reserves of Non-Ferrous and Rare Metals in the Forthcoming Seven-Year Period," "The Basic Trends of Scientific-Research Projects Planned for the Seven-Year Period (1959-1965)."

The staff members of the Institute's department of economics spoke at this conference in favor of greater capital investments in non-ferrous metallurgy of Eastern Kazakhstan, as an economic district which plays an important role in the resolution of the problems of the seven-year plan in the sphere of non-ferrous metallurgy of the USSR. By using examples of the expansion and high standards of complex utilization of the polymetallic ores of the Altai, the high effectiveness of capital investments in this district in comparison with the construction of analogous enterprises in other economic districts of the country was shown.

Of great importance in strengthening the ties between science and production is the participation of the scientific staff of the scientific-research and planning institutes in the work of the technical-economic sovnarkhoz council. The technical-economic council of the Eastern Kazakhstan sovnarkhoz consists of the following sections: geology and mining, concentration and metallurgy of non-ferrous metals, chemistry and metallurgy of rare metals, electric energy and mechanization, construction and construction materials, food and light industry and economics. Three staff members of the department of economics of the Altai Mining and Metallurgical Institute take part in the last section. One of them manages the section. It should be noted that, given such a staff, there are great possibilities for the utilization of basic scientific conclusions flowing from research that has been concluded or is being carried on by the Institute.

As is known, it is mandatory that the decisions of the technical-economic council, the proposals and recommendations of its sections after their approval by the sovnarkhoz, be carried out. The sections are granted the right to control through their members the carrying out of the decisions made by them and approved by the leadership of the sovnarkhoz.

It is possible to judge the work of the section of economics of the technical-economic council of the sovnarkhoz in 1958 by the topics which it discussed at its meetings and by the decisions it has made. In particular, a report about the work of the Kazakhstan expedition by the geographic faculty of the Lomonosov Moscow State University for the study of the productive forces of Eastern Kazakhstan was heard at the section. The general trend of the work of the expedition and its complex nature were approved. It was acknowledged to be necessary for the expedition to perform a complex evaluation of the productive forces of Eastern Kazakhstan from the point of view of the resolution of the basic economic problem of the USSR, on the basis of the scientific generalization of all research, investigation and project works and present it in 1959, and to determine the place of Eastern Kazakhstan in the All-Union division of labor. It is recommended to the expedition that it present the final results of its activity in 1960 in the form of a working hypothesis of the complex development and distribution of the branches of national economy of the district during the forthcoming 15-20 years.

The section recommended that the leaders of the

expedition pay attention to the following problems: the setting of the boundaries of the Eastern Kazakhstan economic district, the establishment of intra-district specialization of agriculture (agricultural micro-districts), outlining the preliminary plan for the development of the Kenderlyk coal and slate deposits. It has also been recommended to provide an analysis of the domestic and foreign contacts of Eastern Kazakhstan, to bring to light the state of the composition of the independent population by administrative districts of the oblast.

An important place in the work of the economics section of the technical-economic council was taken by the discussion of a comparative analysis of the work of mining enterprises of the sovnarkhoz for 1955-1958. A number of reports were heard on this subject, in which technical progress was illuminated and an analysis of the cost of the extraction of ore, the production of labor and so forth was made.

The discussion of the reports made it possible to draw the conclusion that an important role in the further exploitation of the reserves available at mining enterprises of the Eastern Kazakhstan sovnarkhoz is played by the new forms of organization of labor, the perfecting of the planning methods, the preparation of production and the material incentives of workers. The reorganization of the administration of industry helped improve the structure of industrial enterprises and, in this connection, resulted in the more rational utilization of engineering-technical personnel.

After the establishment of the sovnarkhozes, the leaders of the Leninogorsk production combine, for example, began to implement the distribution and utilization of the engineering-technical personnel, thinking in terms of the greatest utility and the needs of the enterprise. With this purpose, the number of production units was reduced from 17 to 6 at the pits of the production combine (the Leninogorsk and the 40-years VLKSM). The engineering-technical personnel which were thus freed have been assigned to work in a special design bureau of mining and concentrating equipment (74 men) and to mines in individual groups (5-7 men) for preparatory production work. The group doing preparatory production work at the pits of the Leninogorsk production combine in 1957-1958 worked out more than ten modifications of the different systems applying to concrete mining and technical conditions. This helped the overfulfillment of the annual plan of ore extraction in the combine.

The economics section recommended that all the mining enterprises of the sovnarkhoz organize groups of engineering-technical personnel for preparatory production work while, at the same time, consolidating units and brigades at the mines to raise the utilization of available technical equipment. At the same time, it has been recommended that a new form of organization of labor devised at the complex brigades at the mines of the Zyrianovsk combine be extended to all the mines of the sovnarkhoz. .

Here, up to 1956, the basic form of remuneration of labor was individual piecework, and the brigades were organized according to the principle of a strict division of functions among the workers according to their professions. At the initiative of I. K. Vesnianko, the brigadier of the mining and sinking brigade of the Masliansk pits of the Zyrianovsk combine, who is today a deputy to the Supreme Soviet of the USSR, the organization of surface, complex brigades was begun. The composition of the I. K. Vesnianko brigade included sinkers, scrapers, dynamiters and locksmiths. Complex brigades with this composition carried out the entire complex of mining works. These brigades have become very common and at the present time they are the basic form of organization of work at the pits of the combine. Every member of the brigade has a material incentive in the ultimate results of labor and this has made it possible to raise to a considerable degree the percentage of the utilization of mechanisms in the last three years.

The economics section also discussed the problem of the technical-economic principles underlying district planning at the Ust-Kamenogorsk industrial center developed by the Leningrad department of Giprogor (State Institute for planning cities, civil constructions and for surveying and planning settlements). Owing to the wide scope of industrial construction in Eastern Kazakhstan, problems of the rational distribution of enterprises, cities and workers' settlements and the organization of public services become very important.

In its decision the section makes the recommendation that the scheme of the district planning of the Eastern Kazakhstan administrative district be composed within the existing administrative boundaries, taking into account the interrelation and coordination of the work of the enterprises with the nearest economic administrative districts. The section recommended to provide for the development of a chemical industry in the district (the obtaining of sulphuric acid and its utilization for the production of superphosphates, the development of the paint and varnish industry at all), the development of a railroad and highway network in the district, the purposeful utilization of the workers' settlement after the processing of the deposits of mineral ores, the development of the light and food industry in keeping with the growth of heavy industry, the size of the population and its distribution, the prospects of further industrial construction and the rational concentration of enterprises in Ust-Kamenogorsk, Leninogorsk, Zyrianovsk, Shemonaikh, in the district of Bukhtarminsk GES and in a number of others.

In the light of the carrying out of the decrees of the 21st Congress of the CPSU, it has been scheduled in 1959 to conduct a discussion and to make decisions with regard to the following questions: "The instilling of the method of continuous planning at sovnarkhoz enterprises," "The organization and economy of the material-technical supplying of sovnarkhoz enterprises," "The economic evaluation of objects of first priority in exploiting the deposits of nonferrous and rare metals" and others.

D. Bradistilov:

The Scientific Research Activity of the Economic Institute of the Bulgarian Academy of Sciences

In the current year the Economic Institute of the Bulgarian Academy of Sciences marks the first decade of its existence. This scientific-research instituion was organized in response to insistent demands by life itself. For ten years the Economic Institute worked on problems that faced the Bulgarian economists in connection with the development of the People's Republic of Bulgaria on the road to socialism. This is what determined the subject matter of the research on which the Institute staff worked.

In recent years the contacts of the Bulgarian economists with economists and economic institutes of socialist countries have multiplied. This is a very important factor that has a stimulating effect on the scientific life of the Economic Institute. The development of Marxist-Leninist science in the USSR has exerted a particularly beneficial influence on the work of our research center. The exchange

information between the institutes of the socialist countries in regard to the plans of scientific research, the ethods of working out the problems, the exchange of inted matter, and also mutual vists have helped expand e complex of questions under examination at the Institute partments and illuminate them correctly.

The Institute staff consists of 37 learned workers. Six them have academic titles (academicians and correspondg members); the rest are professors, senior and junior arned assistants. In addition to the staff members, the stitute attracts a large number of instructors from institions of higher learning and practicing specialists who ke part in the scientific-research activity.

Nineteen fifty-eight, the year that has just ended, was an portant year in the development of socialist upbuilding in r country and, consequently, in the life of the Institute. der the leadership of its Communist Party, seasoned in mbat, the Bulgarian people have successfully concluded e fulfillment of the second and have begun the realization the third five-year plan. Socialism has won a conclusive ctory both in the cities and the villages. By applying eatively the Leninist cooperative plan, the working peastry, led by the Party have carried out the reorganization agriculture on a socialist foundation. Socialist production relations completely dominate all the branches of the tional economy of Bulgaria. Our country has achieved ese successes with the active support of the fraternal soalist countries, with the great Soviet Union at the head. ie scientific-research goals with which the Institute was ced in 1958 were largely determined by this.

As a result of the socialist industrialization of the county during the period of the fulfillment of the first and secd five-year plans for the economic development of Bulria, a heavy and a light industry of considerable dimenons have been created. With the help of the Soviet Union, terprises of ferrous and non-ferrous metallurgy were nstructed, as well as electric power stations, and enterises of the food industry have been expanded. All this ves rise to prospects of a considerable development of dividual branches of industry both in the very near and e more remote future. This, in turn, demands a study of e effectiveness of capital investments and the bringing to ht of the reserves at the disposal of individual enterises and branches. This is one of the principal scienic-research problems. To resolve it the scientific pernnel of the economic sections of industry and transport of r Institute joined forces last year.

Personnel on and off the regular staff of the Institute are busy developing the subject under the general heading of asic Trends in the Development of Industry in the Peo-'s Republic of Bulgaria." The subjects of research are e principal branches of Bulgarian industry: electric wer, coal mining, machinery, metallurgy, chemistry, oil, tile, leather and food. The long-range development of ch of them is determined on the basis of the level attained the given branch, the existing raw-material base, the ace of the given branch in the economy of the country and the international division of labor among the countries of e world socialist system. The conclusions obtained will used by the organs of planning when working out the longge plan for the development of the national economy.

The electrification of the railroads and the development of a transport are of vital importance for the Bulgarian onomy. Two works were devoted to the correct illumina-n of these problems. They were carried out by the staff embers of the economics section of industry. One of them, nonograph on electrification, is scheduled for publication the very near future.

The staff members of the section of political economy of socialism and national economic planning have worked out a number of methodological questions of socialist production. They investigated the problems of distribution and redistribution of the national income in the public economy, the productivity of labor and its planning, and also the problems of utilization of labor resources in agriculture. The section staff also did research into the problem of the real income of the workers during the years of the implementation of the first and second five-year plans. The section pays particular attention to problems connected with the action of the law of value in the socialist economy. Three research papers are devoted to this highly important subject, namely, "Material Incentives Under Socialism," "Effectiveness of Capital Investments," and "Prices and Price Formation in the Bulgarian National Economy."

The section has an active part in working out so important a problem as the establishment of the underlying scientific principles of price formation in the socialist camp, and also methods of comparison of stocks of consumer goods between the member countries of SEV and a number of other problems.

In connection with the speedy development of the socialist foundation of agriculture in Bulgaria, the agricultural science is facing many problems. The economics section of agriculture of our Institute is working on them together with the departmental institutes of the Ministry of Agriculture and Forestry. Jointly with the Economics Institute of Agriculture, the section works on the definition of the methods of calculation of the costs of agricultural production. The section staff independently does research into problems of specialization and combining of branches in agriculture. The problems mentioned above have acquired great importance in recent years, especially in connection with the breaking up of the national economy of Bulgaria into districts. On the basis of research carried out in this area, some conclusions related to method will be made. They will be used in the practice of socialist building in the countryside.

In carrying out its economic policy, the people's government of Bulgaria proceeds from the demands of the law of systematic, proportional development of productive forces, correctly distributed in industry and agriculture, and from the need for long-range territorial planning of the national economy. In this connection, the Bulgarian Academy of Sciences, jointly with the State Planning Commission and the economic departments, was entrusted with the task of preparing a project of economic districting of the country. Part of this important work was assigned to the Economic Institute. The Institute's section of economic districting works out the general methods on the basis of which the scientific-research work will be done. Moreover, the section takes part in working out the methods of drawing up physical balances and the balance of the labor resources by administrative-territorial units. The section staff has prepared for publication a research monograph entitled: "The Development and Territorial Distribution of Productive Forces in the Branches of Industry." In cooperation with the economics section of industry, the section of economic districting also works on the determination of the effectiveness of the existing territorial distribution of the productive forces and production in the principal branches of industry.

A group of the staff members of the section, jointly with the free-lance scientists, work out the following theme on the basis of transport statistics: "Economic Analysis of the Basic Flow of Goods on Railroad Lines." The aim of the scientific inquiry is to discover the economic relations

between production-specialized territories and also to learn about non-rational, excessively remote and cross-haul shipping of homogeneous goods. This investigation will be a basis for working out rational transport ties between the producing and consuming districts of the country.

Staff members of the section of finance, credit and trade have prepared for print research works on the following themes: "The Ways and Means and the Potentialities for Accelerating the Circulation of Working Capital in State Enterprises." Other works reflect the changes in the composition of retail commodity turnover and the problem of commodity stocks. At the present time, the section staff is finishing research into the problem of credit and finance in relation to technical constructions in agriculture, into methodological problems of determination of gross income in trade and problems of purchasing farm products. The section has conducted learned sessions on problems of credit and finance in relation to housing construction, on ways to improve domestic trade and to make foreign trade more profitable. In addition to this, the section personnel carries out a number of other investigations on special assignments of the Council of Ministers, the State Planning Commission and the Ministry of Finance. In particular, reports and conclusions were prepared on the need for decentralizing and simplifying planning, on financing and accounting in the national economy, on the financial security of national economic planning and so forth.

The section of statistics and accounting employs primarily persons not on the regular staff. They are engaged in working out problems related to expanded socialist reproduction and the problems of the composition of physical balances. One of the section groups has worked for more than a year on the methods of calculating the social product, its composition and amount. On the basis of materials on family budgets which are at the disposal of the statistical institutions of the country, some questions of method connected with personal and social (collective) consumption have been worked out. Research is also continuing into profits, prices and price formation from the statistical angle. The staff working on this subject is trying to discover the interrelations and changes of prices and to make relevant conclusions. The subject of "Statistical Control of the Quality of Output," on which the section is at work, is of considerable statistical interest. It is also of great importance for the practice of socialist enterprises. One of the section groups, at the proposition of the Ministry of Finance, will take active part in the working out of organizational and other measures to simplify accounting and make it less expensive and to perfect planning at agricultural enterprises.

Staff members of the political economy section of capitalism and the history of the national economy have continued to work on subjects that had been begun the year before. Among them the following subjects should be noted: "Imperialist Contradictions in the Near and Middle East," "Social and Economic Consequences of the Automation of Production in Capitalist Countries" and "The Problem of Peaceful Coexistence of the Socialist World System and the Capitalist States." A large staff of learned members is preparing a collection of scientific works on the history of the national economy of Bulgaria.

The Institute uses more and more the collective method of scientific research. The practice of the joint working out of scientific problems gives good results. Unfortunately, this method has not yet become common among the Bulgarian economists. Nevertheless, it may be noted that, in spite of the individual shortcomings and mistakes, economic science in our country, in following traditions established by the great Bulgarian revolutionaries, D. Blagoyev, G. Dimitrov and V. Kolarov, generalizes the practice of the Party and the masses in the building of socialism and is developing in close contact with life's demands.

The planning figures of the third five-year national economic plan were approved by the 7th Congress of the Communist Party of Bulgaria, but in the course of the plan's fulfillment the Party stated that its indicators were below the real possibilities at the disposal of the country. However, this does not mean that the plan approved by the Congress was incorrect. The thing is that after the approval of the plan, very essential changes took place in the country. New, hitherto unused potentialities within the national economy were discovered and possibilities for developing it more quickly have been brought to light. A contributing factor was the completed organization of cooperatives in the agricultural sector and the fusing of TKSKh into consolidated units. The successes of other socialist countries, particularly the USSR, showed what important complementary resources were at the disposal of our country: the utilization of these resources will make it possible to fulfill our third five-year plan more quickly than had been anticipated.

As a result of the increased political and labor activity of the masses, it was necessary to revise the planning figures approved by the Congress. The branch and excessively centralized organization of the administration of production became too confining for the increased productive forces and for the experience accumulated by the masses in the sphere of economic management. It slowed up the development of productive forces and prevented the flowering of the creative initiative of the workers. The decrees of the January Plenum of the CC of the Communist Party of Bulgaria resulted in the considerable improvement of the administration. The discarding of the branch principle of management of production and the transition to the organization of the administration of the national economy on territorial principles, and also the creation of new administrative economic districts ensured the necessary conditions for the better development of productive forces. The slogan: "We Shall Fulfill the Five-Year Plan in 3-4 Years" was greeted with enthusiasm by the workers of Bulgaria because it fully satisfies their interests and the expanded possibilities of the national economy of the country.

All this determines the scientific-research problems which are facing the Bulgarian economists and primarily the staff of the Economic Institute in the current year. More specifically, these problems have been characterized by Comrade T. Zhivkov, who has recognized that it is necessary for the Bulgarian economists to concentrate on the working out of urgent problems connected with the action of economic laws in the national economy of Bulgaria, to analyze and theoretically generalize the experience of the economic development of the country and to reveal and demonstrate ways, forms and methods for the fullest utilization of all the potentialities for the continuous rise in the productivity of labor and the lowering of the cost of industrial and agricultural production, to work out problems of the further improvement of planning and organization of enterprises, of perfecting of indicators of the national-economic plan and methods of national-economic planning, to work out problems of the economic effectiveness of production and technical measures, the correct assignment of capital investments, and also to examine problems of international division of labor in the world socialist system and to determine the place of our country in this division. Economic science must be related even more closely to the

ctical problems of socialist construction.
On the basis of these instructions, which in their totality entially constitute a program for the development of economic science, the sections of the Economic Institute pre-ed their scientific-research plans for 1959. In working m out they also took into account the recommendations he Prague Conference of Economists from Socialist untries and the obligations of the Bulgarian Academy of ences, stemming from bilateral agreements with other demies of sciences in a number of socialist countries. Scientific-research subjects carried over from last r were brought into correspondence with the new tasks which face the national economy of the country. Scientific search on these subjects should be completed at an accerated pace to make it possible for their results to be d at the appropriate time by planning and economic ors. The following subjects are especially important now: ne Basic Directions of the Development of the Industry he National Republic of Bulgaria" and "The Districting he National Economy." More room is given over to rks devoted to socialist expanded production in the plans he sections. The staff of the section of agricultural economics has scheduled the completion of a research project the subject: "Forms of Monetary Remuneration of La- in Agricultural Cooperatives." A great share of the rk of this section is devoted to the problem of income profit in agriculture.

The section of economic districting will work on the mes that were carried over from the plan of the preling year and, moreover, will conduct research that purses to reveal the economic essence and territorial influe of the industrial centers now under formation. Moreor, the staff of the section, in cooperation with the staff mbers of the Geographic Institute and the Institute of ricultural Economics, will work on the problems of specialization of agriculture in the vicinity of big cities and ustrial centers. At the conclusion of research into this and other themes, it is intended to begin the study of economic-territorial complexes.

In connection with the expansion of trade relations in the finance, credit and trade section of the Institute, methodological problems of the determination of currency trends under conditions of socialism are worked out.

The section of political economy of capitalism and the history of the national economy gives more attention this year to the theoretical illumination of the anti-Marxist essence of modern revisionism and to the exposure of the anti-scientific nature of bourgeois applogetics in the form of so-called "people's capitalism." A monograph entitled: "The Dialectics of the Development of Bourgeois Views on Capitalism" is being prepared for publication. It will contain a critical analysis of the theory of "people's capitalism"; the share of capitalist states in monopolistic enterprises and the latter's influence on state policy will be shown.

The working out of subjects which reflect the directions of the January Plenum of the CC BCP with regard to the development of economic science is scheduled. Other topics considered will be some theoretical questions posed in the report of Comrade N. S. Khrushchev at the 21st Congress of the CPSU.

In connection with the forthcoming celebration of the 15th anniversary of the September anti-fascist popular uprising, the Institute is preparing for publication a special scientific handbook.

The Institute publishes two press organs. In one of them — Izvestia Ekonomicheskogo Institute (Economic Institute News Bulletin) which comes out twice a year, the preliminary results of some scientific research are published. The other — a monthly magazine entitled Ekonomicheskaya Mysl (Economic Thought) — contains broad discussions of urgent problems of the national economy. It also propagandizes and popularizes the advanced experience and achievements of the people's economy of Bulgaria.

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